Washington State Rail Plan

Public Review Draft

September 30, 2013

Washington State Department of Transportation
Rail Division

With funding support from U.S. Department of Transportation Federal Railroad Administration

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The Washington State Rail Plan was prepared by Washington State Department of Transportation Rail Division, the state rail transportation authority that will also maintain, coordinate and administer the plan. Funding is provided by the state and Federal Railroad Administration.

The plan complies with federal requirements of 49 CFR 266.15 and state requirements of RCW 47.76.220, 47.06.080, 47.06.090, 47.79.040 and 47.04.280. It builds upon previous rail plans and is consistent with the Washington Transportation Plan (2007 and 2010).

The plan is a collaborative effort of WSDOT, railroads, Amtrak, state and local agencies, citizen's groups, other rail stakeholders and members of the public. WSDOT worked closely with Oregon Department of Transportation to coordinate rail planning efforts, and British Columbia also participated in the process.

Timing	**Work Products**	**Outreach Activities**
Fall 2012 – Winter 2013	Vision, goals and objectives System inventory Baseline conditions and future forecasts	Project Briefings Stakeholder Advisory Committee Meeting State Rail Plan Workshops Stakeholder Interviews
Spring 2013	Needs and opportunities Recommendations	Project Briefings Stakeholder Advisory Committee Meeting Regional Rail Workshops
Summer/Fall 2013	Draft rail plan	Project Briefings Stakeholder Advisory Committee Meeting Project Briefings Regional Rail Workshop
October 1 through November 30, 2013	Public Review Draft: Washington State Rail Plan	Project Briefings Open House/Virtual Open House
December 2013	Transportation Secretary Lynn Peterson approves Final Draft Washington State Rail Plan. Document submitted to Federal Railroad Administration for review and acceptance.	Project Briefings
March 2014	Final Washington State Rail Plan	

Executive Summary

Washington's rail system is an integral part of the multimodal transportation system that keeps people and business moving in Washington state. The system provides efficient transportation of both freight and passengers and is critical to maintaining our economy, environment and quality of life. This plan details some of the significant challenges and opportunities the rail system in Washington is facing.

Washington is a trade-dependent state, and much of the freight moving into, out of, within and through Washington is carried by rail. Rail lines provide access to ports, and are critical to the vitality of major industries including aircraft manufacture, forest products and agriculture.

Growing population, rapid development, and traffic congestion—along with environmental concerns—have led to increasing demand for passenger rail service. Much of Washington's passenger rail service operates on privately owned rail-lines, which complicates planning, funding, project delivery and performance of passenger trains.

State Role and Interest

The state has an interest in maintaining quality freight and passenger rail service in Washington to benefit both business and citizens. Although the majority of the rail network is privately owned, the state has an interest in moving people and goods in the most efficient and effective manner.

A number of Washington industries depend on the rail system for shipping bulk and heavy commodities. Without this vital connection, these industries may have trouble competing in global markets. The presence of rail service also makes Washington attractive to potential new industry, which fuels economic development and brings jobs and revenue to the state.

As part of a robust multimodal system, rail helps Washington to be flexible and resilient in the face of changing markets, natural and political disruptions, or shifts in modal economics due to factors such as energy costs.

About this Plan

The State Rail Plan articulates long-term goals, principles and policy recommendations to achieve Washington's vision for the rail system. The project list associated with this plan is illustrative, and includes projects that are underway and those that are found in adopted public plans. By reference, it also includes projects that will be found in the upcoming Freight Mobility Plan. The projects are identified here to illustrate the breadth of needs identified by railroads and rail stakeholders. Other

projects that address the priority needs identified in the State Rail Plan and are included in adopted transportation plans may be incorporated into the list as appropriate. The project list is included in Appendix D: Illustrative Project List.

Outreach

The State Rail Plan was developed with the active participation of dedicated stakeholders, tribes and members of the public. Success of the plan requires strong and ongoing collaboration among the critical parties involved.

Vision Statement: State Rail Plan

As an integral part of Washington's multimodal transportation network, the rail system provides for the safe, reliable and environmentally responsible movement of freight and passengers to ensure the state's economic vitality and quality of life.

Key Issues from Stakeholder Meetings

Major themes that emerged from outreach efforts (meetings, interviews and workshops):

- **Preservation**: Emphasize preservation of existing facilities for freight and passenger rail. Use existing resources before investing in new ones.
- **Capacity & Congestion**: Address capacity issues and system congestion in spots that have the greatest impact on operations of passenger and freight rail services.
- **Connectivity**: Facilitate farm to market movements, connections to ports, and transitions between rail, marine, and trucks.
- **Community Impacts:** Address traffic congestion and safety at at-grade crossings. Evaluate opportunities for freight and passenger rail to contribute to local economic development.
- **Environment:** Communicate the environmental benefits of rail such as greenhouse gas reductions and reducing congestion on highway corridors. Address negative impacts such as noise and delay at at-grade crossings.
- **Mode Share:** Maximize rail use to reduce demand on other modes such as highway and aviation. Evaluate opportunities for expanding passenger rail service. Expand development of high-speed rail.
- **Financial Resources:** Pursue sustainable funding for rail transportation.

- **Collaboration and partnerships:** Facilitate cooperation and leverage resources between government and the private sector.
- **Criteria for decision making:** Benefits such as economic, environmental, safety, efficiency, and mobility benefits of rail should be recognized when making decisions.
- **Coordination with other plans**: State transportation plans such as the state Freight Mobility Plan, the Highway System Plan, the Washington Transportation Plan, and others should be coordinated.
- **State's role:** Stakeholders suggest that the state's role includes providing funding, advocating for rail, and facilitating partnerships.
- **Safety:** Ensure a safe rail transportation system.

This feedback underlies the analysis and direction in this plan. It informs strengths, challenges, needs and recommendations.

Strengths and Challenges

Serving freight and passengers, the state's rail system provides efficient transportation critical to maintaining our economy, environment and quality of life. Along with these strengths, there are also challenges for the rail system.

- Economic and demographic growth will increase demand for passenger and freight rail services, challenging the capacity of the private rail network over which passenger and freight trains operate. Emerging trends, such as proposals to construct new export facilities in the state, suggest the potential for even more acute demands for access to rail infrastructure.
- The state's public and private short-line railroads, which provide valuable access to the national freight rail network to Washington communities and shippers, face infrastructure investment challenges in order to preserve these important services.
- Federal passenger rail policy has provided capital funding to expand frequency and reliability of intercity passenger rail, but also requires Washington to bear more costs of operating these services.

Needs and Recommendations

The State Rail Plan identifies rail system needs and recommends actions for the state to address the needs. The following needs and recommendations are detailed in the plan.

Table ES.1 Needs and Recommendations Summary Table

Group	Needs	Recommendations
Rail Infrastructure and Service (Group A)	Address capacity constraints in order to meet future passenger and freight rail demands	The state's involvement in the rail system should be focused on actions that improve the state's interests, including a thriving and diverse economy, environmental efficiency, resiliency and safety.
		The state should take an active leadership role to build on existing multistate coalitions to address rail system and corridor needs across the Pacific Northwest.
		WSDOT should continue to pursue the incremental implementation of passenger rail service.
		Statewide rail stakeholders should work through regional and state transportation planning on a regular basis to ensure that their needs and opportunities are understood, and are used to inform any state rail investments or planning efforts.
		WSDOT should improve recognition of rail-related needs in its highway engineering activities.
	Preserve existing rail capacity and infrastructure.	Work with short line railroads and short line rail stakeholders to assess short-line rail needs, and create a statewide short-line rail needs inventory.
		WSDOT should consider the stewardship and upkeep history of any potential rail improvement project.
		WSDOT should seek to address rail needs in the most cost-effective manner possible.
		WSDOT should consider strategic state interest when examining the impacts of the loss of rail infrastructure.
	Enhance the efficiency and reliability of existing rail services.	WSDOT should periodically re-evaluate its passenger system plans and adjust them as necessary to achieve operational improvements in pursuit of transportation system goals.
		WSDOT should adopt a formal policy on adding or consolidating stops on Amtrak Cascades.
		The state should ensure that passenger and freight rail metrics are in place that can appropriately evaluate the performance of mobility, efficiency, safety, reliability and environmental compatibility of proposed new projects.
Rail's Role in Economic Development (Group B)	Support economic development by providing access to people and industry.	The state should support efforts to identify those intermodal and multimodal connectors that provide "first and last mile" connectivity to businesses and locations that generate freight and passenger demand. This designation should be included in the project prioritization process.
	Preserve access to global markets by ensuring access to Washington's ports.	The Washington State Freight Mobility Plan should include projects that enhance or support connectivity to Washington's deep water, river and inland ports.

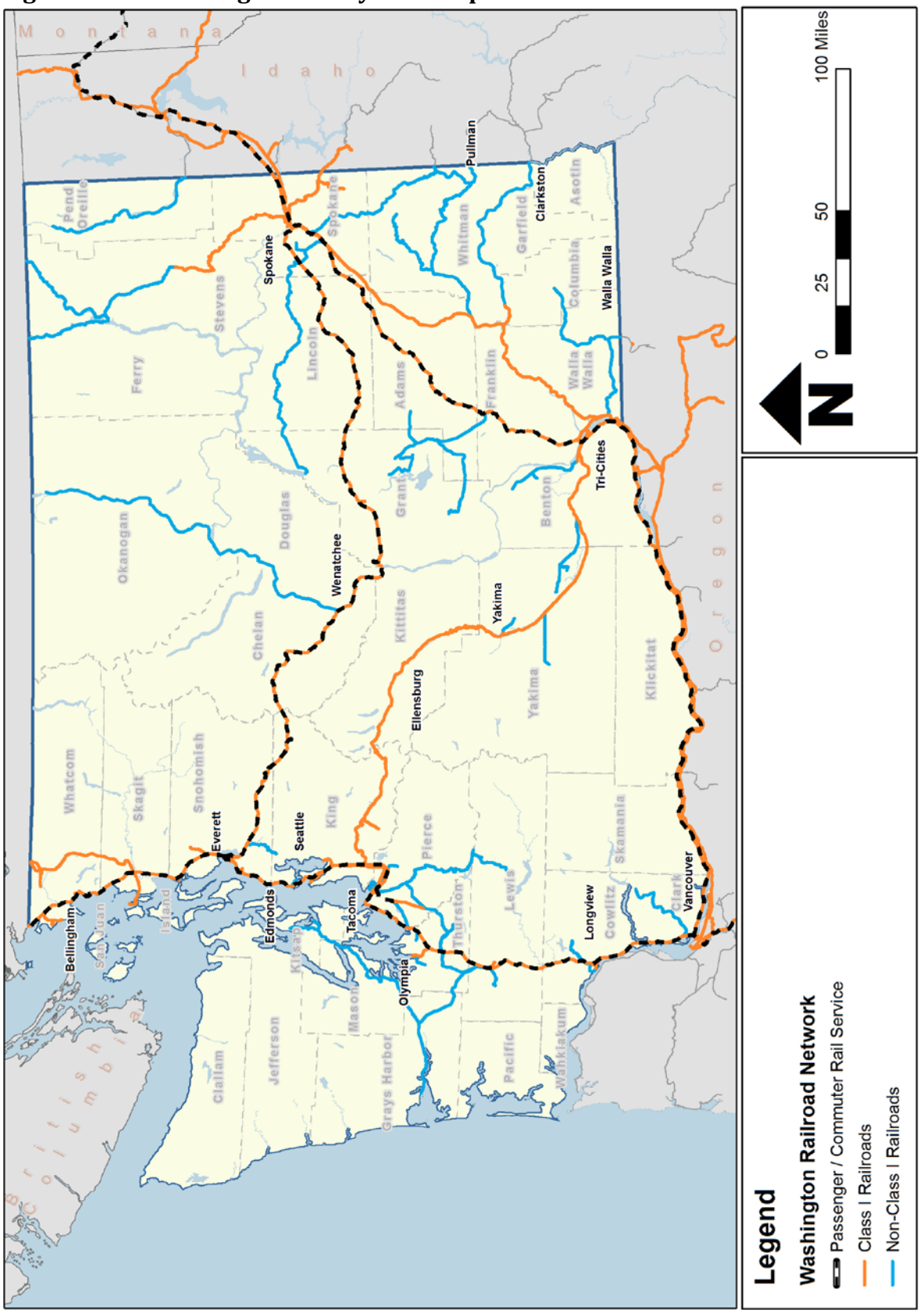
Group	Needs	Recommendations
Rail System Priorities and Goals (Group C)	Employ cost-effective strategies when investing public funds in the state's rail system.	WSDOT should use performance metrics to evaluate its passenger and freight rail programs, and ensure that the program funding is aligned with demonstrated need.
		The state should seek innovative funding and financing sources to leverage public funds and provide more value with limited resources.
		WSDOT will focus on the specific requirements of Amtrak Cascades service to minimize public costs and operate the system in the most efficient manner possible.
	Strengthen rail to maximize the positive benefits, while minimizing the potential negative impacts to communities and the environment.	The state should facilitate discussions about community concerns or questions about rail benefits and impacts, and help coordinate with communities, the railroads and other rail stakeholders.
		Railroads and public agencies should continue to use WSDOT reports, studies and other materials to clearly communicate the benefits of the rail system to Washington residents.
	Continue to support passenger and freight rail safety and security.	The state should continue to support rail safety and security.
		WSDOT should continue to coordinate pedestrian access in and around Amtrak Cascades stations in order to meet safety performance goals.

Conclusion

The State Rail Plan describes a vision for the rail system and provides an assessment of what is working well and what can change to achieve the vision. Priorities are identified for public investment in the system, and actions are identified to make the state rail vision a reality. This plan builds on a foundation provided by many years of thoughtful rail planning and is informed by extensive technical analysis and public outreach. The plan highlights critical needs and outlines recommendations to address them.

Publishing this State Rail Plan is not an ending point. Instead, the plan can guide and inform continuing public investment and action on the rail system over the next five years and the next 20 years.

Figure ES.1. Washington Rail System Map



Source: WSDOT, BNSF, UP and Amtrak

Table of Contents

List of Tables

List of Figures

Chapter 1. Introduction

Rail is an integral part of the multimodal transportation system that keeps people and businesses moving in Washington state. Serving freight and passengers, the state's rail system provides efficient transportation critical to maintaining our economy, environment and quality of life. The Washington State Rail Plan comes at an interesting time for rail transportation in Washington state. The significant challenges facing Washington's rail transportation network in the future include the following:

- Economic and demographic growth will increase demand for passenger and freight rail services, challenging the capacity of the private rail network over which passenger and freight trains operate. Emerging trends, such as proposals to construct new export facilities in the state, suggest the potential for even more acute demands for access to rail infrastructure.
- The state's public and private short-line railroads, which provide valuable access to the national freight rail network to Washington communities and shippers, face infrastructure investment challenges in order to preserve these important services.
- Federal passenger rail policy has provided capital funding to expand frequency and reliability of intercity passenger rail, but also requires Washington to bear more costs of operating these services.

Years of collaborative, consistent planning and substantial state investment prepared WSDOT to compete for and ultimately secure nearly $800 million in federal funds for passenger rail improvements.

The purpose of the Washington State Rail Plan is to outline a strategy for addressing these changes and provide a blueprint for ensuring the continued movement of people and goods on the rail system in support of a healthy economy. Consistent with federal and state requirements, the plan describes what is working well, identifies the challenges, highlights policy priorities and sets a course for state action and investment to ensure that these vital services continue to meet transportation needs in the future.

1.1 Background and Context

This plan combines freight and passenger rail planning into a single, integrated plan. The plan builds on many years of previous planning efforts that have led to positive results.

Statutory Requirements

There are several state and federal requirements that pertain to rail planning in Washington state. This State Rail Plan is a single plan that meets all these requirements, is integral to the Washington State Department of Transportation's (WSDOT) rail program, and is consistent with other state and regional transportation planning documents.

The federal requirements for a state rail plan are outlined in the Passenger Rail Investment and Improvement Act of 2008 (PRIIA). This federal law requires states to take a more active role in setting statewide rail policy and complete a state rail plan that includes inventories and proposed improvements for freight and passenger rail systems, an examination of how freight and passenger systems function together, and a detailed long-range investment program.[1]

There are three separate state requirements for WSDOT to develop rail plans. This is the first rail plan that combines all of these requirements into one plan, building upon previous efforts, including:

- 2008 Washington State *Amtrak Cascades Mid-Range Plan* (one-time requirement from state legislature to develop this addition to the Intercity Passenger Rail Plan.)
- *2010-2030 Washington State Freight Rail Plan* (Freight Rail Plan required in RCW 47.06.080 & State Rail Plan required in RCW 47.76.220)
- 2006 Washington State *Long-Range Plan for Amtrak Cascades* (Intercity Passenger Rail Plan required in RCW 47.06.090)

1.2 Importance of Rail to Washington State

Washington is a trade dependent state. In 2007, approximately 83 million tons and 41 percent of all interstate freight associated with a Washington origin or destination was hauled by rail.[2] Washington ports play a pivotal role in handling this traffic, by serving as the international gateway for a broad range of commodities ranging from consumer electronics to heavy bulk goods. For example, Washington is the fourth largest producer of wheat in the United States, producing over 167 million bushels in 2011. Harvested wheat is taken by farmers' trucks to either on-farm storage or commercial grain elevators. After the wheat is sold, it is transferred by truck to regional rail or barge loading facilities. According to the Washington Grain Commission, about 27 percent of wheat is transported by rail at some point. Rail is also critical to the ongoing vitality of the state's major industries including aircraft manufacturing, forest products and other agricultural products. Increasing market share for Washington products is a state goal and rail plays an important role.

Passenger rail service, once almost gone in the early 1970s, has regained importance in the throughout the Pacific Northwest. A growing population, rapid development and worsening highway congestion in the

In many respects, rail has achieved a stature in this second decade of the 21st Century that it has not had in over fifty years. Rail has become central to a multimodal strategy that provides efficient transportation, supports broad-based economic growth, and does so at a smaller environmental footprint than the other major modes.

[1] www.fra.dot.gov/eLib/details/L02692.

[2] Federal Highway Administration Freight Analysis Framework Version 3.3. On an overall basis, including intrastate traffic, rail accounted for approximately 100 million tons and 20 percent of total volume.

I-5 corridor, coupled with environmental concerns, led to public demands for expanded passenger rail service in the region. The result has been a growing public commitment to developing intercity passenger service along the Pacific Northwest Rail Corridor (PNWRC) between Vancouver, British Columbia (B.C.) and Eugene, Oregon, as well as development of commuter rail in the Puget Sound region. From 1994 onward, when Washington became actively involved in developing the PNWRC, ridership on Washington sponsored Amtrak Cascade services has grown from less than 200,000 in 1996 to over 560,000 in 2012, while Sound Transit's Sounder commuter rail went from startup in 2000 to over 2.8 million riders in 2012. Amtrak's two long-distance trains that serve the state—the Coast Starlight and the Empire Builder—have also had significant gains in ridership in the last 20 years.

Benton-Franklin Council of Governments Workshop Feedback: Investments in the rail system can lead to new business opportunities.

Whereas highway, air, and water infrastructure are generally owned and maintained at public expense and accessible to any licensed operator, rail carriers not only move the freight, they commonly also own, maintain and control the physical infrastructure. Washington's passenger services are reliant on this privately owned system, without which it would not be possible to provide cost-effective service. While this arrangement complicates planning, funding, service delivery and performance management, it also offers the potential for partnerships, including leveraging of public investment.

Rail is critical to the ongoing vitality of major industry that is located in Washington, notably forest products and agriculture, and even some high-tech sectors such as aircraft manufacturing.

The benefits of maintaining quality rail service in Washington are significant. Rail is generally the most cost-effective mode for shipping bulk and heavy commodities overland. A number of Washington industries fit this profile and would cease to be competitive if rail service was to decline or cease outright. Similarly, the presence of rail service enhances the ability to attract new industry, a relationship that has been found to exist in studies of rail service and economic development in other regions.[3] Looking ahead, a broadly multimodal transportation system that is flexible and resilient will be even more necessary, whether as a result of changes in markets, natural and political disruptions, or shifts in modal economics brought about by large factor cost increases such as energy. Finally, the fact that the state owns and manages some elements of freight and passenger rail service further elevates the state's interests in making rail central part of a state's transportation strategies, and this rail plan reflects both the great opportunities that are present, as well as the associated complexities.

[3] See, for example, National Association of Development Organizations (NADO) Research Foundation Center for Transportation Advancement and Regional Development, Short Line Railroads: Saving an Endangered Species of Freight Transport. Case Studies, Experiences and Lessons Learned from Regional Development Organizations (available at http://www.nado.org/pubs/shortline.pdf)

1.3 Outreach

Rail transportation is dependent on many partnerships between government agencies, private industry and other stakeholders. The State Rail Plan was developed with the active participation of dedicated stakeholders and will not be successful without strong and ongoing collaboration.

WSDOT connected with stakeholders, tribes and members of the public in a variety of ways. In addition to interviewing stakeholders, convening an advisory committee and providing numerous small group briefings, WSDOT held three workshops at the beginning of the process to solicit input into development of the vision and goals for the plan. In addition, several Regional Transportation Planning Organizations and Metropolitan Planning Organizations in the state invited WSDOT to conduct additional workshop sessions. These were designed to provide community members with opportunities to provide a local/regional perspective on the State Rail Plan. Workshops were held in Kennewick and Blaine, and one is scheduled for September 30, 2013, in Centralia.

Callout boxes throughout the report draw attention to rail issues that are important to individuals and institutions throughout the state.

Citizen and Stakeholder Feedback: WSDOT solicited feedback from individuals, groups and stakeholders throughout the state. Feedback from these meetings can be found in boxes like this one.

1.4 Approach

The State Rail Plan articulates long-term goals, principles and policy recommendations to achieve Washington's vision for the rail system. WSDOT followed a deliberate process designed to identify and describe the rail system and the state's interest in it, identify potential public actions to improve the rail system, and recommend policies for state action.

The State Rail Plan report summarizes key findings and highlights priorities for state action. Technical analysis and other details are provided in a series of technical notes that accompany the plan. A list of these technical notes can be found in the Appendices.

First, WSDOT developed the plan's vision statement through public participation using state transportation planning goals and previous rail policies as a basis. A set of goals are associated with this vision. The vision and goals established for the State Rail Plan provide several themes to guide policymakers and the decision-making process. The vision and policy foundations (including evaluation criteria) for the plan are described in Chapter 3.

Vision Statement: State Rail Plan

As an integral part of Washington's multimodal transportation network, the rail system provides for the safe, reliable and environmentally responsible movement of freight and passengers to ensure the state's economic vitality and quality of life.

With the vision in mind, the rail system was then evaluated for strengths and weaknesses. This evaluation included technical analysis of infrastructure and usage with an understanding of demographic characteristics and economic trends that influence rail system demand, as well as stakeholder interviews and public outreach. The strengths and weaknesses reflect the perspectives from a range of stakeholders with varying responsibilities involved with planning, operations and investment decisions. This work provides an assessment of how the rail system is performing to serve the transportation needs of Washington state. Results of this evaluation are described in Chapter 4.

Based on the evaluation of the rail system, a set of needs were developed. These needs include the essential requirements for a functioning rail system—aspects that are both working well and will need improvement to achieve the rail system vision in the future.

Recommendations to policy makers are associated with each of these identified needs. The following considerations serve as evaluation criteria and provide a framework for analysis of the rail system's strengths and challenges and provide the basis for the recommendations outlined in this chapter:

- Consistency with state policy.
- Response to well-defined need.
- Distinguish between public and private benefit.
- Demonstrate efforts to optimize service and implement lower-cost improvements first.

Priority needs and recommendations are outlined in Chapter 5.

The path forward for overcoming challenges and reaching the vision is culminated in implementation and investment. Possible actions include policies, programs, operational changes and capital projects. Along with financing, these are discussed broadly in Chapter 6.

The project list associated with this plan is illustrative, and includes projects that are underway and those that are found in adopted public plans. By reference, it also includes projects that will be found in the upcoming State Freight Mobility Plan (scheduled for 2014). The projects are identified here to illustrate the breadth of needs identified by railroads and rail stakeholders. Other projects that address the priority needs identified in the State Rail Plan and are included in adopted transportation plans may be incorporated into the list as appropriate. The project list is included in Appendix D: Illustrative Project List.

Chapter 2. Rail System Overview

Washington's rail system is a central part of a multimodal transportation strategy that provides choices, supports broad-based economic growth and offers an environmentally efficient transportation option. The rail network is categorized into freight services and passenger services. This categorical division is reflected throughout the structure of this document. Yet, both freight and passenger services share the same infrastructure and operate as an integrated rail system.

This chapter provides an overview of the rail system in Washington state. It describes rail infrastructure and services, the institutional structure that governs rail, and funding programs administered by the state in the last ten years. Additional detail on the rail system and the issues associated with each element can be found in Chapter 4 and in the Appendices.

2.1 Rail System Elements

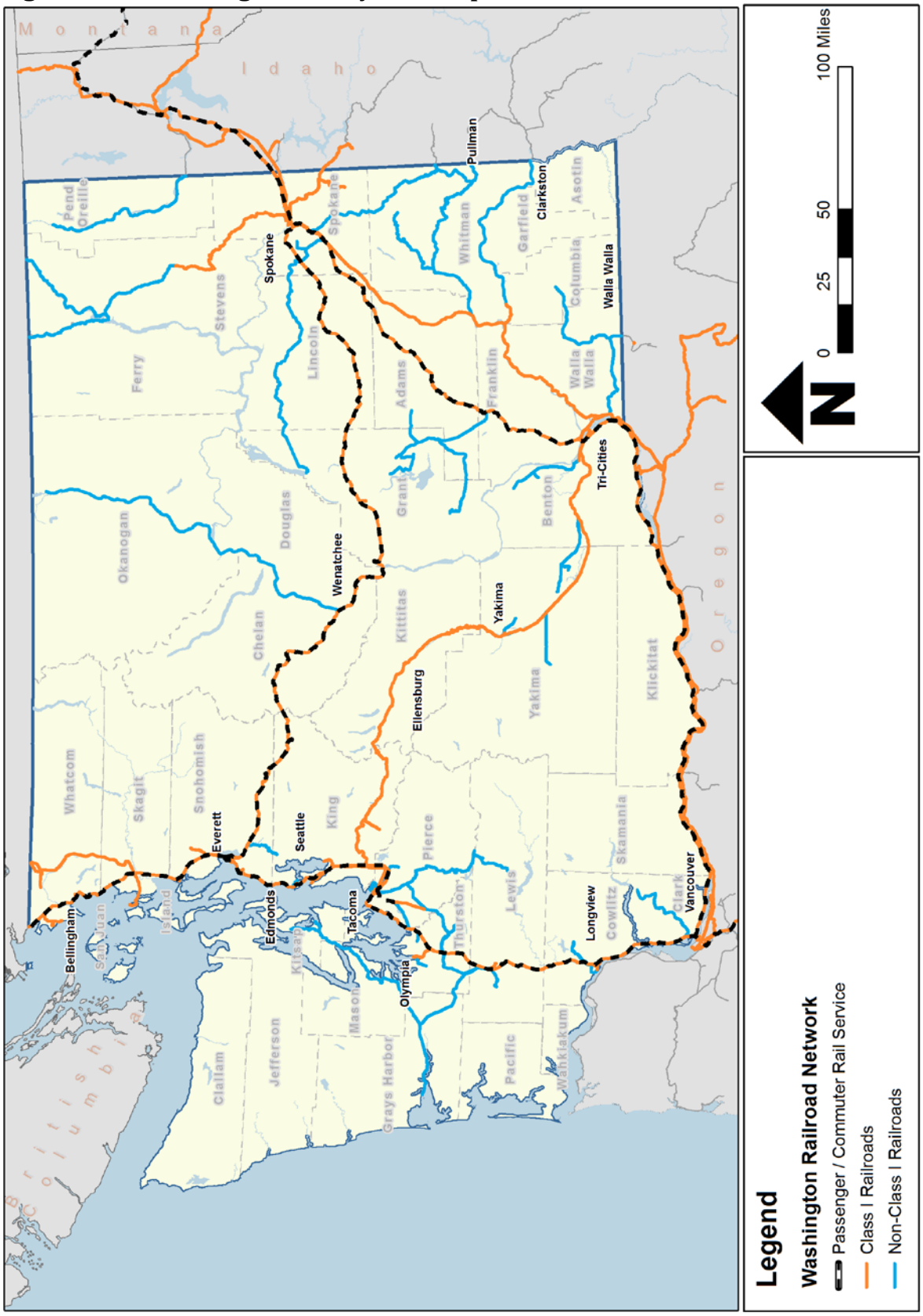
Many Parts – One System

The rail system is part of a larger transportation network that includes many transportation modes (roadway, air, sea) to move people and goods. Rail can play different roles in these trips by serving as the primary mode of transportation, providing only a single leg of the journey, or acting as a mode that expands transportation choice and provides resilience.

Likewise, the rail system is made of different parts, or elements, each with specific roles and purpose. This system connects communities within Washington to each other and to other communities throughout North America and around the world.

The rail system in Washington consists of both freight and passenger rail elements as shown in Figure 2.1. The freight rail system consists of an expansive network of main lines, branch lines, yards and terminals. The passenger rail system consists of long-distance, intercity and commuter rail services operating mostly on freight rail lines.

Figure 2.1. Washington Rail System Map



Source: WSDOT, BNSF, UP, and Amtrak

Freight Rail

Freight rail in Washington includes two Class I railroads, one regional railroad, various short-line railroads and intermodal[4] facilities. The freight railroads are categorized in a three-tiered structure established by the federal Surface Transportation Board (STB), based on annual operating levels:

- **Class I: Annual operating revenue of more than $433.2 million.** BNSF Railway (BNSF) and the Union Pacific Railroad (UP) are the only Class I railroads in the state. These two Class I railroads provide the majority of rail service in terms of total commodity tonnages handled, as well as total track-miles operated in the state.
- **Class II: Annual operating revenue between $34.7 million and $433.2 million.** Class II railroads are also commonly referred to as regional railroads by the Association of American Railroads (AAR). The only Class II railroad with rail operations in Washington is Montana Rail Link.[5] Montana Rail Link operates in Washington solely as a tenant of BNSF, and is not further addressed in the body of this report.
- **Class III: Revenues of less than $34.7 million and are engaged in line-haul[6] transportation.** There are a total of 24 Class III railroads in Washington. This includes **short-line** (or local) railroads and **switching** or **terminal** railroads. The STB considers switching and terminating railroads (i.e. railroads that primarily engage in switching and/or terminal services for other railroads) to be Class III carriers, irrespective of their operational or revenue characteristics.

Freight rail highlights:

- **Washington has over 3,000 miles of railroad line[7] that provide mobility for goods moving into, out of, within and through the state.** The movement of these goods is accomplished using a system of main lines, branch lines, industrial spurs and rail yards

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4 Intermodal, for the purpose of this document, refers only to freight shipped in containers and highway trailers. Multimodal, on the other hand, refers to any transportation using more than one mode.

5 While they do not have rail operations in Washington, the Alaska Railroad is a Class II railroad that operates a barge service from Seattle, Washington, which connects to its own main line at Whittier, Alaska.

6 For carload service, the line-haul represents the portion of a trip between yards where cars are sorted and/or staged for delivery or pick-up from line-side industries and transloading facilities. For trailer/container intermodal service, the line-haul portion of a trip comprises the segment between intermodal terminals at origin and destination.

7 www.aar.org/keyissues/documents/railroads-States/Rankings-2010.pdf.

operated by a variety of carriers. On the rail system, most of the key main lines discussed in this State Rail Plan are also designated by the Freight Mobility Strategic Investment Board (FMSIB) as Washington's *Strategic Freight Corridors*, and are therefore eligible for FMSIB grants. These are defined as "freight corridors that enhance the state's competitive position through regional and global gateways."[8]

- **The state's freight railroads are a vital mode of transportation that supports Washington's freight intensive industries, such as manufacturing, construction, agriculture, forest products, and wholesale and retail trade.** In Washington state, these industries employ more than 1.2 million people, or 40 percent of the state's total employment. In terms of contribution to the Gross Domestic Product (GDP), freight intensive industries provided about 41 percent of the state's total GDP in 2010, or about $106 billion. Manufacturing accounted for approximately $36 billion of this amount, retail trade $23 billion, and wholesale trade $16 billion.[9]

- **Washington's two Class I railroads—BNSF and UP—together own 60 percent of the rail network by mileage, and carry in excess of 1.9 million carloads of freight each year.** With over 3,700 employees and a combined payroll of $260 million in Washington for the year 2011, these two railroads handled the vast majority of rail freight into, out of, within and through Washington. The two railroads are roughly similar in size, with system wide gross revenues in 2012 amounting to $20.5 billion for BNSF and $20.9 billion for UP. These two Class I railroads provide the majority of track-miles operated in the state. Class I railroads connect Washington to trading partners throughout the United States, Canada and Mexico.

- **There are 24 Class III railroads in Washington (18 local railroads, and six switching and terminal railroads), which provide vital transportation links between industries and their markets, in particular, in the state's rural regions.** Each of these railroads is unique—they vary in size from one mile to over 100 miles of track, and are owned by a variety of public and private entities.[10] Ten out of the 24 railroads are owned by a holding company, eight are owned by public agencies, five are owned by a single private entity, and one is owned by a Class I

[8] www.fmsib.wa.gov/reports/annuals/20130129FMSIB2012annualreport.pdf.
[9] Technical Note 3a: Freight Rail Demand, Commodity Flows and Volumes.
[10] WSDOT Railroad GIS Data; Short-Line Railroad Websites.

parent company.[11] This ownership structure reflects the history of short-line railroads in the state, and the fact that the state has at times intervened to acquire short-line railroads that were threatened with abandonment.

Short-line railroads are shown in Table 2.1. There are about 1,450 miles of short-line railroad track in Washington, representing 40 percent of the total rail mileage in the state.

Table 2.1 Class III Railroads in Washington

Class	Name	SCAC*	Parent Company	Public ROW Ownership	Miles Operated in Washington
Local	Cascade and Columbia River Railroad	CSCD	Genesee & Wyoming Company		148
Local	Central Washington Railroad	CW	Temple Ind.		80
Local	Chehalis-Centralia Railroad	POCH	Port of Chehalis	Port of Chehalis	10
Local	Columbia and Cowlitz Railway	CLC	Patriot Rail Company, LLC		9
Local	Columbia Basin Railroad	CBRC	Temple Ind.		86
Local	Eastern Washington Gateway	EWG	Independent	Washington	108
Local	Eastside Rail	EAST	Port of Seattle	Port of Seattle	11
Local	Great Northwest Railroad	GRNW	Watco Co.		69
Local	Kettle Falls International Railway	KFR	Omnitrax		142
Local	Palouse River and Coulee City Railroad	PCC	Independent	Various	169
Local	Pend Oreille Valley Railroad	POVA	Port of Pend Oreille	Port of Pend Oreille	61
Local	Portland Vancouver Junction Railroad	PVJR	Temple Industries	Clark County	33
Local	Puget Sound and Pacific Railroad	PSAP	Genesee & Wyoming Company		108

[11] Note that railroads can be owned and operated by different companies. For example, a publicly-owned railroad can be operated by a private entity.

Class	Name	SCAC*	Parent Company	Public ROW Ownership	Miles Operated in Washington
Local	Royal Slope Line[a]	RS		Washington	26
Local	Washington and Idaho Railroad	WIR	Washington, tracks only)	Washington	87
Local	Western Washington Railroad, LLC	WWR	Independent	City of Tacoma	18
Local	Yakima Central Railroad	YCR	Public	Yakima County	21
Switching and Terminal	Ballard Terminal Railroad	BDTL	Independent		3
Switching and Terminal	Longview Switching Company	LVSW	Class I (UP and BNSF)		17
Switching and Terminal	Meeker Southern Railroad	MSN	Independent		5
Switching and Terminal	Mount Vernon Terminal Railway	MVT	Independent		1
Switching and Terminal	Tacoma Rail[b]	TMBL/ TRMW	Tacoma Public Utilities	City of Tacoma	185
Switching and Terminal	Tri-City and Olympia Railroad	TCRY	Independent	Port of Benton	31
Total					**1,458**

Source: WSDOT Railroads GIS Data; Short-line railroad web sites; *2010 – 2030 Freight Rail Plan*.

* SCAC – Standard Carrier Alpha Code.

[a] Line currently not in operation.

[b] Tacoma Rail Tidelands/Capital Division (TMBL) and Tacoma Rail Mountain Division (TRMW) are counted as two railroads in the summary, with the latter as a short-line (local) railroad.

- **Terminals provide transfer points between rail, truck and marine modes, and are key links in supply chains using the state's ports.** The transfer can take place in the form of shifting an intact container or truck trailer holding goods from one mode to another, or moving the contents between a truck or vessel and a railcar. Common commodities that are transferred in this manner include bulk goods (dry or liquid), such as grain, cement, vegetable oil, and pellets made of plastic; assembled motor vehicles; and project cargoes, such as electrical transformers and windmill parts. Washington produce and processed foods are often transported by rail, such as apples, wheat and frozen potatoes. The upcoming

Washington State Freight Mobility Plan will provide more detailed information about these multimodal terminals.

Facilities where trailers and containers are transferred intact between modes are typically called intermodal terminals, and are a specific example of multimodal terminals. There are several different types of intermodal terminals, each serving a different purpose (see Table 2.2). On-dock rail terminals handle international containers directly moving from ship to rail and vice versa, while near-dock terminals can handle both port-related and highway traffic. Inland terminals[12] generally handle the transfer of containers and highway trailers between truck and rail.

Table 2.2 Intermodal Facilities in Washington

Name	Type	Rail Service Provider
Port of Seattle Intermodal Terminals	On Dock	BNSF/UP
Port of Tacoma Intermodal Terminals	On Dock	BNSF/UP
Tacoma South Intermodal Facility	Near Dock	UP
Seattle International Gateway	Near Dock	BNSF
Argo Intermodal Facility	Near Dock	UP
South Seattle Intermodal Facility	Off Dock	BNSF
Port of Quincy Intermodal Terminal	Inland	BNSF
Spokane Intermodal Terminal	Inland	BNSF
Port of Pasco Intermodal Terminal[a]	Inland	BNSF

Source: WSDOT, Cambridge Systematics analysis.
[a] Port of Pasco processes intermodal container traffic, but is not identified as an intermodal facility on BNSF's network map.

Passenger Rail

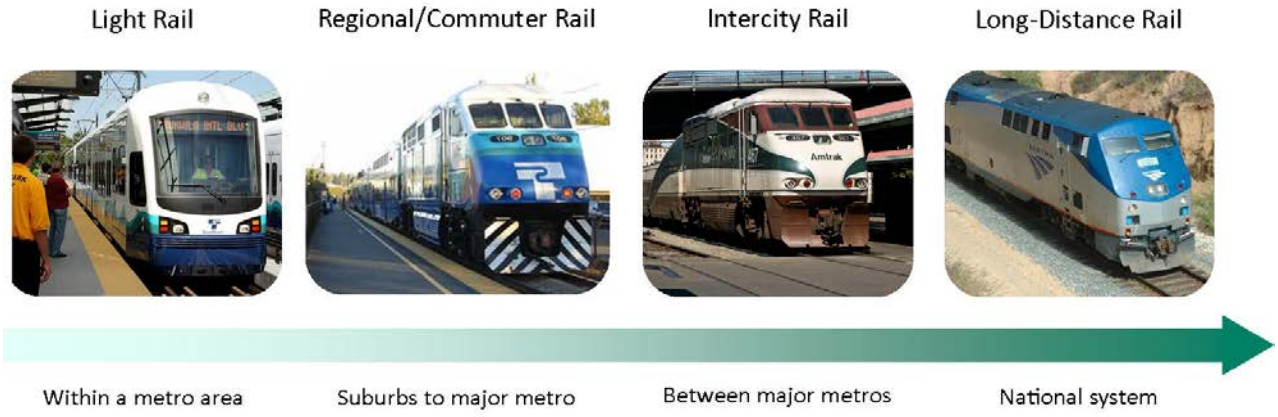
Washington's passenger rail services link cities and regions throughout the state, supporting commuter, business and leisure travel needs while promoting economic activity and providing an alternative to travel on the state's highways. In addition to the local, regional and statewide importance of these services, the Pacific Northwest Rail Corridor (PNWRC), on which Amtrak Cascades service travels, is one of 11 federally-designated high-speed rail corridors in the country. Passenger service in Washington operates mainly on freight rail infrastructure. Federal definitions for passenger rail systems are:

[12] In North America there is presently no active use of the inland waterway system for handling intermodal trailers and/or containers on river vessels and barges. However, elsewhere in the world, particularly in Europe this is a common practice.

- **Long-distance service** with routes of more than 750 miles between endpoints operated by Amtrak. Two long-distance services operate in Washington: Empire Builder and Coast Starlight.
- **Intercity rail service** passenger service, except commuter, is shorter than 750 miles. Amtrak Cascades, sponsored by Washington and Oregon, is the intercity passenger rail service operating in the Pacific Northwest.
- **Commuter rail passenger transportation** in metropolitan and suburban areas usually having reduced fare, multiple-ride, commuter tickets, and morning and evening peak period operations (49 USCS § 24102). In Washington, Sound Transit's Sounder is the sole commuter rail service that shares tracks with freight rail.[13]

These types of passenger rail services are shown in Figure 2.2.

Figure 2.2 Passenger Rail Service Types



Tourist railroads do not have passenger transportation as a primary purpose, and are therefore not included in the passenger rail system. They are classified as Class III railroads by the Federal Railroad Administration (FRA). Washington has several active tourist trains, which provide scenic rides and often showcase historical trains or routes. Though these services are explored briefly in Technical Note 2: *Freight and Passenger Rail Inventory,* they are not otherwise explored in the body of this report.

Passenger rail highlights:

- **The State Rail Plan focuses on three types of passenger rail services in Washington**. Amtrak provides long-distance service

[13] Light rail, street cars and similar services also transport commuters, but operate on different tracks from freight rail and are not discussed in this plan. Light rail will be addressed in WSDOT's Public Transportation Plan.

on two routes: the Empire Builder and the Coast Starlight. The Washington State Department of Transportation (WSDOT), Oregon Department of Transportation (ODOT) and Amtrak provide intercity service on Amtrak Cascades. Sound Transit provides commuter rail service between Everett and Seattle, and Seattle and Lakewood in the central Puget Sound area.

- **WSDOT is expanding Amtrak Cascades service in Washington with $800 million in federal funding for capital improvements throughout the corridor.** These federal funds will provide an additional two round trips between Portland and Seattle, improved on-time performance and schedule reliability and shorter travel times.
- **Effective October 2013, the federal government will shift responsibility for funding Amtrak Cascades services to the states, in accordance with the Passenger Rail Investment and Improvement Act of 2008 (PRIIA)**. This will increase operating costs for states. Currently, Washington and Oregon jointly fund 80 percent of Amtrak Cascades' operating costs. Under the provisions of PRIIA, Washington and Oregon must absorb direct costs for operating Amtrak Cascades that had previously been paid by Amtrak.
- **Sounder is expanding service as part of Sound Transit 2 (ST2).** The ST2 ballot measure was approved in 2008, and outlines long-term improvements, expansions, and funding to commuter rail and other transit services in the Sound Transit service area (urban areas of King, Pierce and Snohomish Counties).

2.2 Institutional Structure of Rail

The institutional structure of rail influences how the State Rail Plan is implemented. As noted previously, Washington's rail system is distinct from its roadway, transit, aviation and water transportation networks in that the vast majority of the infrastructure is owned by private companies, such as BNSF and UP. Each firm functions as an integrated business, including marketing and pricing services, operating and dispatching trains, maintaining assets, and allocating capital for rolling stock and infrastructure. Washington state has several venues for interaction and participation with the freight railroads. In general, overlap between public policy and private railroad decision-making occurs in five areas: state-sponsored and state-owned assets, taxation, grade crossings, rail safety and economic incentives.[14] The cumulative influence of these five policy areas can serve to improve the rates of return of railroad investments made in a

[14] AASHTO Freight Rail Bottom Line Report: www.camsys.com/pubs/FreightRailReport.pdf.

state by creating a more favorable business climate for railroad development.

- **State-Sponsored and State-Owned Assets.** Washington state is a sponsor of the Amtrak Cascades passenger rail service, owns track on two short lines—the Palouse River and Coulee City Railroad (PCC) and the Royal Slope (RS), and manages the Grain Train and Produce Car Rail Pool programs.
- **Taxation**. Freight railroads are significant property owners (BNSF and UP have $19 billion in assessed property value in Washington, according to the Washington Department of Revenue), and therefore a state's method of assessment and distribution of property taxes can impact a railroad's willingness to invest capital in their property. Washington's property tax process uses a valuation method that does not penalize railroad improvements.
- **Grade Crossings**. The most common interaction by the public with railroads is where roads and rail lines physically intersect at-grade, which the FRA typically refers to as a highway-rail grade crossings.[15] State and local governments do not regulate or otherwise control the frequency, schedule or type of rail traffic using the crossings. Since 1987, the federal highway safety program requires states to dedicate a portion of their federal safety funds on grade crossing protection devices, which the railroads are then obligated to maintain.
- **Rail Safety.** Rail safety regulation is the responsibility of the FRA. FRA's role is to ensure consistent enforcement in the interests of interstate commerce. States are authorized to enforce federal rail safety regulations under a program in which state rail safety inspectors are trained and certified by the FRA. The Washington Utilities and Transportation Commission (UTC), a state agency, has four inspectors, one each in the safety disciplines of track, operating practices, hazardous materials and signal and train controls.
- **Economic Incentives**. States may offer economic incentives to railroads and other organizations to improve infrastructure, expand capacity or build out rail access to a new or expanding industry. The purpose of these incentives typically is to boost local economic activity and increase employment. These incentives can be offered in the form of property or sales tax exemptions or reductions for infrastructure improvements and rolling stock

State and local governments do not regulate or otherwise control the frequency, schedule or type of rail traffic using highway rail crossings.

[15] A road that crosses a railroad at the same elevation is referred to as an at-grade crossing, while a location where the road and railroad are separated by a bridge structure is referred to as a grade separation.

acquisition. Some states offer direct funding programs for rail infrastructure improvements, similar to Washington programs like the Freight Mobility Strategic Investment Board's (FMSIB) grant program, and WSDOT's assistance programs. State funding assistance, either in direct grants, loans or tax policy, can increase the effective rate of return for freight railroad investments, making the state a more attractive place for businesses using rail service. Incentives for private carriers and shippers should be tailored to match the economic benefits accruing to local communities in terms of expanded employment, increased household incomes and improving tax revenues.

Federal Rail Involvement

Several different federal agencies regulate intercity and commuter passenger rail, including the FRA, the Federal Transit Administration (FTA) and the STB. Urban transit systems not connected to the freight rail network, such as light rail systems, are administered solely by the FTA. Freight railroads, which by definition are in the business of interstate commerce, are exempt from most state and local regulation. Instead, they are regulated by a variety of federal departments, agencies, and boards.

The primary agencies overseeing railroads are the FRA for safety, and the STB for economic regulations. Other agencies within the U.S. Department of Transportation (the parent agency to the FRA, FTA, and FHWA, among others) also have significant involvement, both directly with the carriers and indirectly in conjunction with the state departments of transportation and regional jurisdictions. Table 2.3 summarizes the purposes and responsibilities of the agencies that are most involved with management of freight and passenger rail services.

Table 2.3 Federal Agencies Involved in Rail Regulation

Agency	Scope of Activity	Authorities/Responsibilities
Federal Railroad Administration (FRA)	Train/Track Safety	• Develops and enforces basic operating rules for train safety, tank car safety, railroad industrial hygiene, rail equipment safety, and grade crossing safety and trespass prevention. • Oversees employee hours of service regulations and signal and train control regulations. • Inspects and audits railroad track. • Tracks rail movement of spent nuclear fuel and radioactive waste. • Manages the Rail Safety Improvement Act of 2008 (RSIA).

Agency	Scope of Activity	Authorities/Responsibilities
	Rail Funding/ Financing	• Oversees Railroad Rehabilitation and Improvement Financing program (RRIF). • Manages the Passenger Rail Improvement and Investment Act of 2008 (PRIIA). • Manages American Recovery and Reinvestment Act (ARRA) as it relates to intercity passenger and freight railroads. • Administers intercity passenger rail grants through various programs.
	Guidance	• Provides guidance and analysis of intercity passenger rail and high-speed rail services. • Produces the National Rail Plan, outlining national priorities for freight and passenger rail networks, incorporating input from state rail plans.
Federal Transit Administration (FTA)	Rail Funding/ Financing	• Oversees grants to transit providers, and ensures grant recipients are managing their programs in accordance with federal, statutory and administrative requirements. • Funds rolling stock and infrastructure for commuter rail services.
	Technical Assistance	• Provides technical assistance and guidance to state and local commuter rail providers.
	Safety	• Administers program to coordinate system safety among all transit providers, including heavy rail and light rail.
Surface Transportation Board (STB)	Administrative Authority	• Settles railroad rate and service disputes. • Reviews proposed railroad mergers, acquisitions, abandonments and new line construction. • Mediates conflicts between passenger operators (including Amtrak and other intercity and commuter rail operators) and host railroads. • Investigates causes of poor on-time performance (OTP) or other intercity passenger rail service quality deficiencies caused by the operator, host railroad or managing entity.
Pipeline and Hazardous Material Safety Administration (PHMSA)	Hazardous Materials Safety	• Regulates and enacts rules that ensure safe movement of hazardous materials. • Tracks data on hazardous materials. • Permits, inspects, and enforces safety of hazardous materials.

Agency	Scope of Activity	Authorities/Responsibilities
Department of Homeland Security (DHS)	Security	• Establishes requirements for national rail security strategy and risk assessment. • Tracks hazmat shipments. • Creates railroad requirements for developing institutional risk assessments. • Conducts programs for rail security training. • Conducts rail security research and development (R&D).
Environmental Protection Agency (EPA)	Environmental Regulation	• Regulates and establishes locomotive emission standards. • Enforces the National Environmental Policy Act (NEPA) that requires environmental review for proposed rail projects.
U.S. Army Corps of Engineers	Construction Permitting	• Manages permitting for construction on waterways and wetlands
USDHS: U.S. Coast Guard	Construction Permitting and Funding	• Manages permitting for structures crossing navigable waterways • Administers Truman-Hobbs Act, which funds bridge projects over navigable waterways

Source: Agency web sites.

State Agencies Involved in Freight Rail

With the federal preemption for interstate commerce, states have little involvement in the regulation of railroads from an economic and safety standpoint. Nevertheless, states are engaged in many other aspects of the rail industry, particularly in the realm of planning, coordination, investment, and, to some degree, safety. The key Washington agencies involved in these topics are described below. Regional agencies involved in prioritizing freight projects are included in Table 6.2 in Chapter 6.

WSDOT

WSDOT is the steward of a large and robust transportation system, and is responsible for ensuring that people and goods move safely and efficiently. In addition to building, maintaining, and operating the state highway system, WSDOT is responsible for the state ferry system, and works in partnership with others to maintain and improve local roads, railroads, airports, and multimodal alternatives to driving. WSDOT is responsible for managing and directing the state's rail programs (both freight and passenger; and both capital and operating), the state's freight grants and loans programs, and developing the State Rail Plan. WSDOT sponsors Amtrak Cascades and the PCC. WSDOT is the designated state

rail transportation authority that maintains, coordinates and administers the State Rail Plan. WSDOT also develops the State Freight Mobility Plan in cooperation with the Freight Mobility Strategic Investment Board's Freight Advisory Committee.

Freight Mobility Strategic Investment Board (FMSIB)

FMSIB is a governor-appointed board that offers public grants to leverage private investments for freight projects. The projects must be located on a designated strategic freight corridor[16] that meets the criteria established in state law (chapter 47.06A RCW) and rule (title 226 WAC). FMSIB's roles include designating strategic freight corridors on state highways, city streets, county roads, railroads, and waterways based on WSDOT's research; developing criteria for projects; administering project grants; and submitting status reports to the state legislature. Recently, FMSIB convened the state's Freight Advisory Committee consistent with MAP-21(federal surface transportation act) to provide expert advice to WSDOT and the Transportation Commission in the development of their respective planning and policy efforts.

Utilities and Transportation Commission (UTC)

The UTC is a governor-appointed commission whose mission is "to protect consumers by ensuring that utility and transportation services are fairly priced, available, reliable and safe." The UTC's Railroad Safety Section ensures public safety by monitoring operation of the 25 railroad companies offering service in Washington. The section conducts safety inspections of various aspects of railroad operation. Under state authority, staff inspects crossings and walkways and evaluates, investigates and recommends to the commission whether company-filed petitions related to crossing changes and close clearances should be approved. Working with the Federal Railroad Administration, commission staff conducts inspections of company operating practices, hazardous materials handling, crossing signals and track. The section provides education and outreach services as part of the Operation Life Saver program. It also investigates accidents and complaints from the public, and partners with local, state and federal agencies to implement safety awareness and improvement programs. The commission administers the Grade Crossing Protective Fund.

Washington Community Economic Revitalization Board (CERB)

A statutorily authorized board, CERB is the state's strategic economic development resource, focused on creating and retaining jobs in partnership with local governments, and financing public infrastructure that encourages new development and expansion in targeted areas.

[16] A strategic freight corridor carries at least 4 million gross tons on state higways, city streets or county roads; 5 million gross tons on railroads; or 2.5 million net tons on waterways. See RCW 47.06A.010

State Agencies Involved in Passenger Rail

Passenger rail services in Washington consist of long-distance passenger rail service (Empire Builder and Coast Starlight), intercity passenger rail service (Amtrak Cascades), and regional commuter rail service (Sounder). While the long-distance passenger rail lines are managed by Amtrak at the federal level, the intercity passenger rail service (Amtrak Cascades) is administered at the state level, and the commuter rail service is managed at the local level. Table 2.4 summarizes the roles and responsibilities of the key players in administering, planning, operating and funding these services.

Table 2.4 Passenger Rail Roles and Responsibilities

Roles/ Responsibilities	Empire Builder/Coast Starlight	Amtrak Cascades[a]	Sounder Commuter Rail
Operations Funding	Amtrak	WSDOT, ODOT	Sound Transit
Capital Funding	Amtrak	WSDOT, ODOT, Amtrak	Sound Transit
Operator	Amtrak	Amtrak	BNSF
Equipment Ownership	Amtrak	WSDOT, ODOT, Amtrak	Sound Transit
Equipment Maintenance	Amtrak	Amtrak and Talgo on behalf of WSDOT, Amtrak and ODOT (beginning 2013)	Amtrak
Planning	Amtrak	WSDOT, ODOT, Amtrak	Sound Transit
Other Partners	Various Host Railroads, Communities for Station Facilities	BCMoTI[b], Amtrak, track and station owners, border control agencies	Various Host Railroads

Source: Consultant analysis.

[a] The roles of WSDOT, ODOT and Amtrak will change in October 2013, with the states assuming a greater role in the delivery of intercity passenger rail. States are responsible for 100 percent of direct route costs. The table reflects roles after the transfer to the states.

[b] British Columbia Ministry of Transportation and Infrastructure.

2.3 Rail Transportation Funding History in Washington

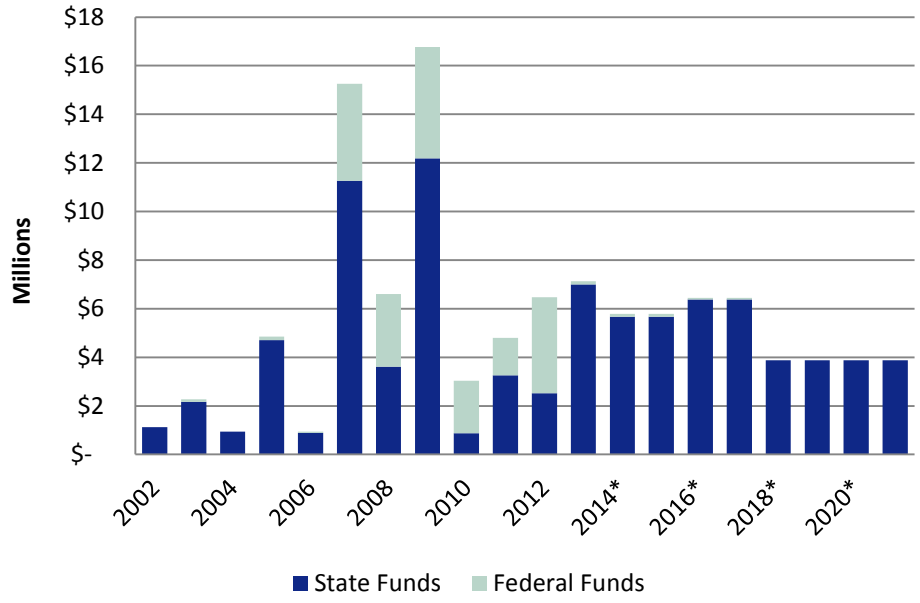
Freight Rail

The vast majority of investments in Washington's rail system are made by the private freight railroads, and BNSF and UP in particular. However, state and federal funding has played a role in supporting infrastructure investments on short lines and terminal facilities. During fiscal years 2002 through 2011, these investments totaled $72.9 million, with $57 million

provided by the state and $15.6 million by the federal government, respectively[17] (Figure 2.3). Peak expenditures in 2007 and 2009 occurred as a result of funding for specific projects passed by the legislature in 2003 and 2005.

In 2005 the legislature established a recurring revenue stream for rail projects with baseline funding for the Freight Rail Assistance Program (FRAP) and the Freight Rail Investment Bank (FRIB) program. FRAP provides grants to publicly- and privately-owned railroads, shippers or receivers and port districts for purposes of rehabilitation, infrastructure preservation or economic development. FRIB is a loan program for publicly-owned railroad systems, ports, counties and cities. Both programs are administered by WSDOT.

Figure 2.3 Freight Rail Capital Funding, State Fiscal Years 2002 to 2021



Source: WSDOT
* Proposed funding amounts

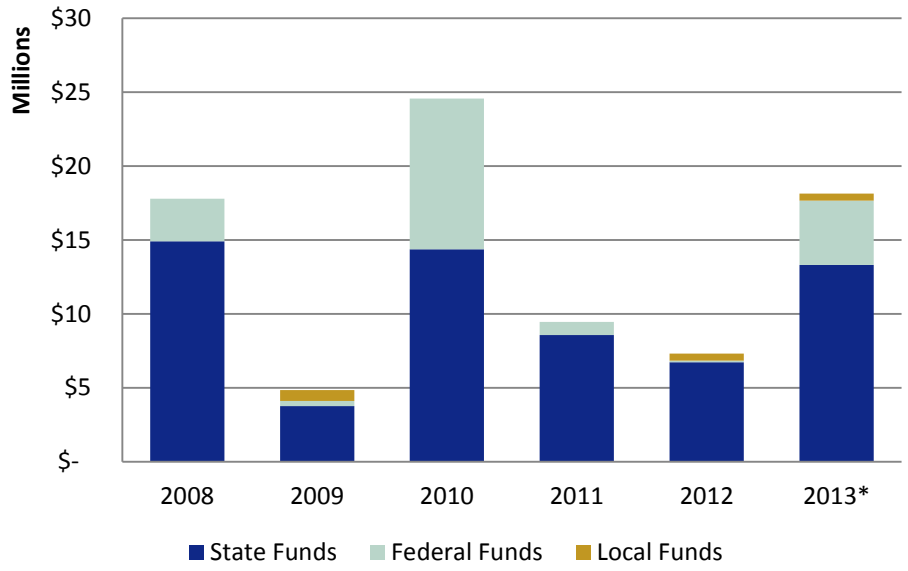
Freight Mobility

Another source of funding for multimodal freight transportation projects is FMSIB, an independent freight board that prioritizes and recommends freight projects for funding. Cumulative investments from FMSIB from 2002 to 2012 were $64 million, including $48.3 million in state funds, $14.4 million in federal funds, and $1.2 million in local funding (Figure 2.3). Funding for FMSIB is used for multimodal freight

[17] This amount does not include Palouse River & Coulee City Railroad (PCC) purchase and rehabilitation.

transportation projects, including truck and rail projects in individual cities, at Washington ports, or in coordination with WSDOT.

Figure 2.4 Freight Mobility Strategic Investment Board Funding, State Fiscal Year 2008 to 2013



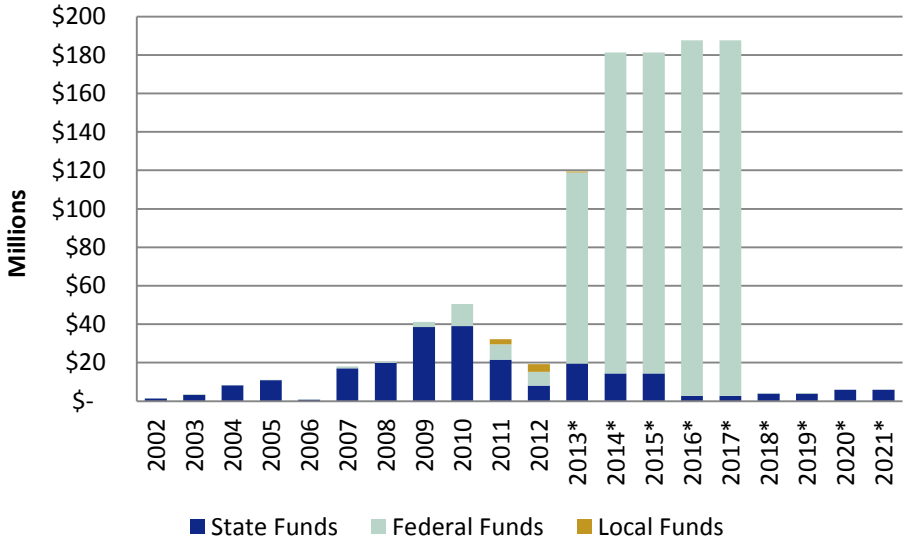
Source: WSDOT
* Projected
Note: $29.5 million in funding is appropriated for 2014-2015. This includes $28.6 million for capital projects as selected by FMSIB.

Passenger Rail

Passenger rail has historically been funded primarily through state and federal sources (as well as passenger farebox revenues). Cumulative passenger rail capital funding from state and federal sources for state fiscal years 2002 to 2011 was $188.1 million, of which the state contribution was $160.7 million and the federal contribution was $24.7 million (Figure 2.5)[18].

[18] Reported expenditures for 2012 are based on actuals; however, the state biennium has not closed out for State Fiscal Year (SFY) 11-13. For years 2013 and beyond, the amounts are derived from the Transportation Executive Information System (TEIS) based on the projected funding from the state legislature.

Figure 2.5 Passenger Rail Capital Funding, State Fiscal Year 2002 to 2021



Source: WSDOT
* Projected funding amounts. Federal funds are secured.

Chapter 3. Rail Vision and Policy

The Washington state transportation system connects us to our families, friends, neighbors, jobs and communities. Transportation is the key to economic development, connecting businesses with customers and suppliers and connecting Washington to the global economy.[19]

Planning and investment in the state's rail system is guided by the vision of the Washington State Department of Transportation (WSDOT) to keep people and business moving by operating and improving the state's transportation systems vital to taxpayers and communities. The State Rail Plan is consistent with the Transportation System Policy Goals adopted by the state legislature. The plan's emphasis on improving mobility as part of a strategy to support Washington's economy is consistent with *Results Washington*, [20] Governor Inslee's data-driven performance management and continuous improvement system.

Combined, these policy frameworks provide the context for how the state approaches its involvement in the rail system. They were also instrumental in forming the vision statement that drove the technical work completed in this rail plan. This plan incorporates vision and guidance from previous planning efforts including the *Cascades Rail Corridor Management Workplan* (2013), *2007-2026 Washington Transportation Plan*, *Washington Transportation Plan 2030*, Washington State *2010-2030 Freight Rail Plan*, and the Sound Transit 2005 *Long-Range Plan* for regional transit.

The vision and goals set the direction for what the plan achieves. They helped identify and prioritize needs. The objectives and implementation strategies describe how the plan will achieve the vision and goals by identifying recommended future state investment in Washington's passenger and freight rail system. The State Rail Plan will be a reference for other states and will contribute to the National Rail Plan.

3.1 Major Themes from Outreach

Outreach efforts, including workshops, briefings and interviews, highlighted issues that were of primary importance to government agencies, private industry and other rail stakeholders. The major themes we heard were:

- ***Economic development:*** Address the importance of rail transportation in moving people and goods for a vital state

[19] 2007-2026 Washington Transportation Plan (WTP).
[20] www.results.wa.gov

economy by recognizing that Washington industries rely on a competitive freight rail system in North American and global trade.

- ***Preservation of existing facilities for freight and passenger rail:*** Preservation of existing assets should be prioritized over expansion or new construction by: completing track maintenance and preservation activities on schedule; preventing loss of rail right of way; pursuing land use compatibility; and using existing resources before investing in new, such as existing right of way and infrastructure.

- ***Rail capacity and system congestion:*** Understand which chokepoints and congested spots have the greatest impact on the operations of the state's passenger and freight rail services. Address key chokepoints on the rail line, accompanying infrastructure (rail yards, etc.) and at terminals. Chokepoints may also include insufficient railcar supply to meet shipping needs. Recognize that the amount of volume that can be accommodated depends not only on infrastructure, but also on the railroad's scheduling strategy, use of technology and many other business decisions. Because capacity is dynamic, it should not be used as a sole measure for decision making.

- ***Connectivity:*** Facilitate farm to market movements (short line); connections to international markets—via the Ports of Seattle, Tacoma and others—including product transfer between rail, marine and truck. Strengthen connections between intercity rail and public transit. Improve transitions between rail and non-motorized transportation to encourage biking and walking.

- ***Community impacts:*** Address the potential that increased rail traffic may affect traffic congestion and safety at at-grade crossings. Evaluate opportunities for freight and passenger rail service to contribute to local economic development.

- ***Environment:*** Communicate the environmental benefits of rail transportation, such as greenhouse gas reduction and reduced need

for highway expansion. Identify and address negative impacts, such as noise and delay at at-grade crossings.

- ***Mode share:*** Maximize use of freight and passenger rail to reduce demand on highways and air transportation and to reduce greenhouse gas emissions. Consider rail in multimodal planning for high-capacity transportation corridors. Identify and evaluate opportunities to expand passenger rail service to population centers in eastern Washington. Continue and expand development of high-speed rail.
- ***Financial resources:*** Pursue sustainable funding for rail transportation.
- ***Agency collaboration and public-private partnerships:*** Facilitate cooperation and leverage resources between various levels of government and the private sector, in particular for freight rail or short-line rail expansion projects. This includes state, provincial, regional and local partners in the Pacific Northwest Region (Washington, Oregon, Idaho, British Columbia). These partnerships may be leveraged to share information, fund capital projects or improve service.
- ***Criteria for decision making:*** Recognize that the state's rail system can yield significant benefits to Washington state passengers and industries. These impacts can include economic, environmental, safety, efficiency and mobility benefits. These benefits should be recognized within any decision-making framework. Consider cost effectiveness and monitor success of any project using public money.
- ***Coordination with other plans and current policies:*** There needs to be coordination between state transportation plans, such as the Washington State Freight Mobility Plan, the Highway System Plan, the Washington Transportation Plan (WTP), and other plans.
- ***State's role:*** Stakeholders suggest that the state's role includes providing funding, serving as an advocate for rail and facilitating partnerships. Participants mentioned the need for a long-term vision (50 years) as well as practical plans for the near and mid-term.
- ***Safety:*** Ensure a safe rail transportation system.

3.2 Vision for Washington's Rail System

The Washington State Rail Plan's vision statement is, "As an integral part of Washington's multimodal transportation network, the rail system provides for the safe, reliable and environmentally responsible movement of freight and passengers to ensure the state's economic vitality and quality of life." This vision provides a blueprint for future rail planning

and investment activities. It was created in a collaborative process with freight and passenger stakeholders through a series of workshops, advisory committee meetings and one-on-one stakeholder interviews.

A comprehensive, multimodal planning approach that considers rail along with highways and public transportation, and incorporates land use considerations, is essential to achieving this vision.

Vision Statement: State Rail Plan
As an integral part of Washington's multimodal transportation network, the rail system provides for the safe, reliable and environmentally responsible movement of freight and passengers to ensure the state's economic vitality and quality of life.

3.3 The State's Rail Policy

WSDOT's activities to implement the rail vision are guided by the six transportation system policy goals established by the legislature, as well as recommendations developed in the 2006 Washington State Transportation Commission (WSTC) *Statewide Rail Capacity and System Needs Study*. Washington's Transportation System Policy Goals are listed in Table 3.1.

Table 3.1 Washington's Transportation System Policy Goals (Chapter 47.04.280 RCW)

Goal	Content
Economic Vitality	To promote and develop transportation systems that stimulate, support and enhance the movement of people and goods and ensure a prosperous economy.
Preservation	To maintain, preserve and extend the life and utility of prior investments in transportation systems and services.
Safety	To provide for and improve the safety and security of transportation customers and the transportation system.
Mobility	To improve the predictable movement of goods and people throughout Washington state.
Environment	To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities and protect the environment.
Stewardship	To continuously improve the quality, effectiveness and efficiency of the transportation system.

Pacific Coast Collaborative Leaders Forum – Governments of Alaska, British Columbia, California, Oregon and Washington Vision for High Speed Rail:
"Rail, particularly high-speed rail, can deliver significant benefits to the region including advancing climate change goals, energy conservation, congestion reduction, and job creation for the citizens of the region."

3.4 Evaluation Criteria

The vision and goals established for the State Rail Plan point to several themes to guide decision making. These criteria, described below, served as a framework for the analysis of rail system strengths and challenges, and provide the basis for the policy recommendations.

- Consistent with federal and state goals and policies.
- Fulfills a need identified through the technical work, stakeholder outreach or review of previous studies conducted during this State Rail Plan.
- Distinguishes between public and private benefits.
- Demonstrates efforts to optimize service and implement lower cost improvements first.

Individual funding programs each have their own criteria used to evaluate and rank applications and award funds.

3.5 Alignment with Other Plans

This State Rail Plan is a component of a comprehensive transportation planning program in the state that aims to improve mobility using multimodal approaches. Table 3.2 lists Washington transportation plans and their connections to the State Rail Plan. Metropolitan and regional transportation plans developed by Metropolitan Planning Organizations and Regional Transportation Planning Organizations also inform the plan.

Table 3.2 Recent Transportation Plans and Studies

Year	Title/Agency	Relation to State Rail Plan
2006	Statewide Rail Capacity and System Needs Study WSTC	Capacity analysis consulted, projects considered, key issues and bottlenecks considered.
2006	Long-Range Plan for Amtrak Cascades WSDOT	Long-range vision and plans for the Amtrak Cascades corridor between Vancouver, B.C. and Portland.
2008	Washington Transportation Plan Update Freight Movement WSDOT	One-time update to the WTP. Additional source for consideration of projects.
2008	Amtrak Cascades Mid-Range Plan WSDOT	Underpins the planning for Amtrak Cascades route planning.
2009	2010-2030 Freight Rail Plan WSDOT	Physical inventory data, historical information.

Year	Title/Agency	Relation to State Rail Plan
2010	Washington Transportation Plan 2030 WSTC	Recommends policies for the statewide transportation system.
2010	High-Speed Rail on the Pacific Coast Pacific Coast Collaborative	Examination of opportunities to supplement and leverage existing and planned high-speed rail investments to fully connect the region from San Diego through Portland and Seattle to Vancouver, British Columbia.
2011	Pacific Northwest Marine Cargo Forecast Update and Rail Capacity Assessment Washington Public Ports Association	Consideration in freight projections, rail to port connectivity, alternative demand scenarios.
Soon	State Freight Mobility Plan WSDOT	State Rail Plan will provide rail-related content for Freight Mobility Plan.
Soon	Highway System Plan WSDOT	Identify highway capacity constraints that may be relieved by rail, and identify at-grade crossings improvements on the state highway system.
Soon	Washington Transportation Plan WSTC	Multimodal transportation plan incorporating rail, highway, ferry, aviation, marine and river, public transportation, bicycle facilities, and pedestrian walkways. This plan will include recommendations from the State Rail Plan.
Soon	USDOT Planning Efforts FRA, FTA, FHWA	PRIIA and MAP-21 include provisions for agencies to develop strategies, guidance, and/or plans for freight, rail, public transportation, and highways. These efforts impact the states' transportation systems.

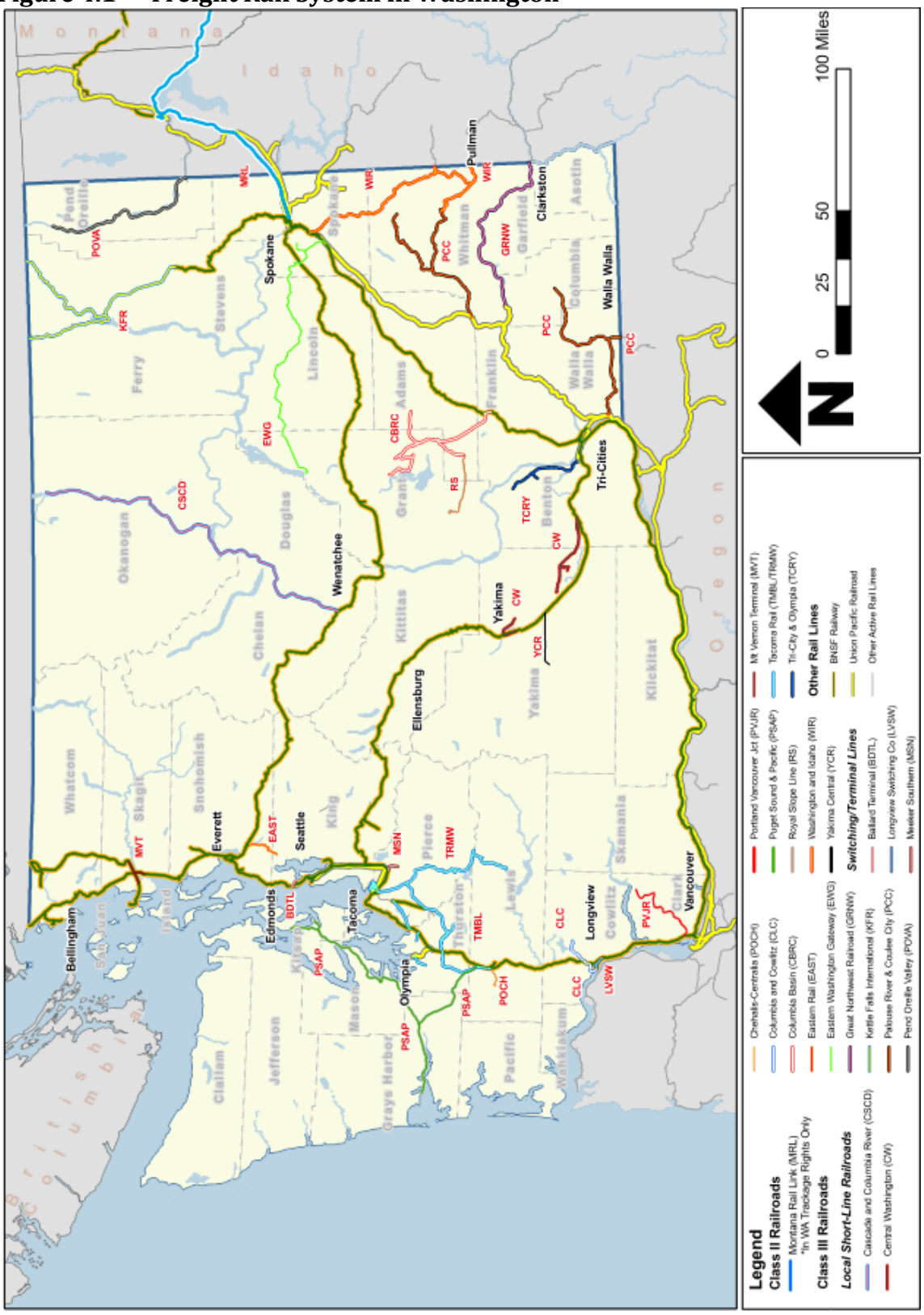
Chapter 4. Rail System Strengths and Challenges

In order to identify needs and opportunities for the rail system, it is important to understand what is working well and identify the challenges. To make this assessment, the project team developed a system inventory, engaged in discussions with rail stakeholders (including operators and system users), analyzed existing conditions, and anticipated future conditions. The results are described in extensive detail in technical reports that accompany the State Rail Plan.

This chapter highlights key findings most relevant to identifying needs and developing plan recommendations. Each element of the rail system is analyzed for existing and future conditions, areas that are working well, areas that need improvement, and other key issues. The discussion of strengths and challenges is organized as follows:

4.1 Freight Rail

Figure 4.1 Freight Rail System in Washington



Source: WSDOT; Short-line railroads web sites; *2010 to 2030 Freight Rail Plan.*

The main routes of the Class I railroads are the arterials of Washington's rail network, handling the vast majority of rail traffic in the state. These routes handle traffic that may start and end its trip anywhere on the North American rail network. This could be an industry served directly by rail, an intermodal terminal, a Class I branch line, a short-line railroad, or a private terminal. Thus, the discussion of rail demand and capacity in the state is provided in the context of the Class I railroads, which carry the majority of traffic on the rail system.

4.1.a Class I Railroads

The two Class I freight railroads that operate in Washington state are BNSF Railway (BNSF) and the Union Pacific Railroad (UP). Together, they own 60 percent of the rail infrastructure by mileage, and carry millions of carloads of commodities each year. These two railroads are responsible for moving the vast majority of freight handled by rail into, out of, within and through Washington. Combined within Washington, they employed over 3,700 people in 2011, with a net payroll of $260 million.[21]

BNSF is the largest rail operator in Washington, handling a total of 1.367 million carloads in 2011 over a 1,633-mile network in the state. The primary network consists of three east-west lines and one north-south line. The Everett to Spokane line, which passes through the Cascade Tunnel under Stevens Pass, is BNSF's primary route for intermodal traffic. The Auburn to Pasco route crosses the Cascade Range through the Stampede Pass Tunnel. The third route follows the north bank of the Columbia River from Vancouver, Washington (WA) to Pasco. The three east-west routes are linked by the north-south I-5 rail corridor, which runs the length of the state from the Canadian border at Blaine through Bellingham, Everett, Seattle, and Tacoma to Vancouver, WA and Portland. It is the backbone of Washington's rail network, linking the transcontinental routes and the large economic centers along the Pacific coast. In Washington, this route is owned by BNSF, with UP holding trackage rights between Portland and Tacoma. Amtrak's long-distance services operate between Portland and Everett, Amtrak Cascades provides intercity rail over the entire route, and Sounder commuter rail uses the line in the Central Puget Sound region.

UP is the second largest rail operator in Washington by mileage and volume. It operates on 532 miles of track, 260 miles of which are through trackage rights on other railroads. In 2010, the total number of carloads handled on its routes in Washington amounted to about 550,000.[22]

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[21] UP statistics from UP Factsheet, Form 10K for Washington, 2011; BNSF statistics from BNSF Factsheet, Form 10K for Washington, 2011.

[22] Union Pacific Washington State Statistics Report, 2011.

UP's primary east-west corridor serving Washington is actually in Oregon, running between Portland and Hinkle on the south bank of the Columbia River. At Hinkle (near Hermiston, Oregon), the line forks: one line runs northeast from Hinkle to Spokane, linking up with the Canadian Pacific near Eastport, Idaho; and the other line runs southeast from Hinkle to Granger, Wyoming and Ogden, Utah, connecting with UP's historic Central Corridor that links the San Francisco Bay Area with Salt Lake City, Omaha and Chicago. Along the I-5 corridor, UP uses its own rails between Seattle and Tacoma, trackage rights over BNSF between Tacoma and Vancouver, WA, and its own rails southward through Oregon and California.

State Role and Interest – Class I Railroads Form the Backbone of the Rail System

BNSF and UP are important to Washington state by virtue of the volume of freight traffic hauled, the rail infrastructure that serves freight (and passenger) rail traffic in the state, the economic impact of these two Class I railroads and the benefits they provide to the economy. The two railroads connect short-line railroads to the national rail network, and host most of the passenger rail service.

A well-functioning rail system provides considerable benefits to Washington's economy. For example, availability of reliable rail service contributes to increase the attractiveness of Washington ports for discretionary cargo, and could help improve competitiveness for the ports located in the Pacific Northwest. A decline in rail service may produce a shift in traffic to truck for high-value goods that are typical of the manufacturing and retail sectors. This would have several negative impacts to the state's economy. Taxpayers would bear the costs for increased wear and tear and congestion on Washington's roadways, and those increased costs could lead to rising prices or loss of trade and industry.

Existing and Future Conditions

Class I railroads hold critical importance for rail operations throughout the state. This section provides a high-level overview of current and projected use of the system for handling freight. This includes a summary of commodities handled, the direction of traffic flows, and trends that may influence or change the future development of rail in Washington.

Private railroads typically do not release network-level data on train volumes, so an analysis of commodities carried by rail within the state provides a basis for analysis of present and future rail demand. This demand directly influences the type of freight service and level of investment that the railroads will undertake. For the state, anticipated patterns of freight flows and demand for intercity travel will affect multimodal transportation policy and investment strategy to address the mobility needs of the state's residents and shipping public.

Strengths of Class I Railroads – Meeting Current Demands

The rail system is working well today by providing sufficient capacity to meet demand for rail transportation. The highest utilization[23] of the Class I freight rail network occurred on BNSF's Pasco-Spokane subdivision at approximately 87 percent of the practical line capacity. BNSF's Portland, Vancouver, WA to Pasco subdivision follows at 71 percent of practical line capacity. Since 2012, BNSF's directional running of empty bulk trains on the Stampede Pass route (Auburn-Pasco via Yakima) has vastly enhanced rail capacity over the previous bidirectional rail operation—by almost 300 percent—from about 10 trains per day to 39 trains per day. At present, this route handles approximately 4-6 trains per day.

Summary of Future Demand for Rail Transportation

How will the system operate in the future? The Federal Railroad Administration (FRA) requires state rail plans include a rail system capacity analysis. This broad analysis is meant to show what a future rail system would look like with the anticipated freight and passenger rail growth, if no additional capacity or operational improvements were made.

In reality, it is anticipated the Class I railroads (BNSF and UP) and other infrastructure owners will likely address key capacity issues as they emerge. Therefore, the 2035 capacity assessment is included here to illustrate the magnitude of growth anticipated for Washington's rail system, to underscore the need for continued planning and action to address capacity and mobility concerns throughout the system.

Washington's rail system is expected to handle more than 260 million tons of cargo by 2035—more than double the volume carried on the system in 2010. This represents a compound annual growth rate of 3.4 percent for all commodities carried on the rail system. As a result, and as shown in Figure 4.3, several rail segments are expected to require operational changes and/or capital improvements to manage anticipated freight rail volumes.

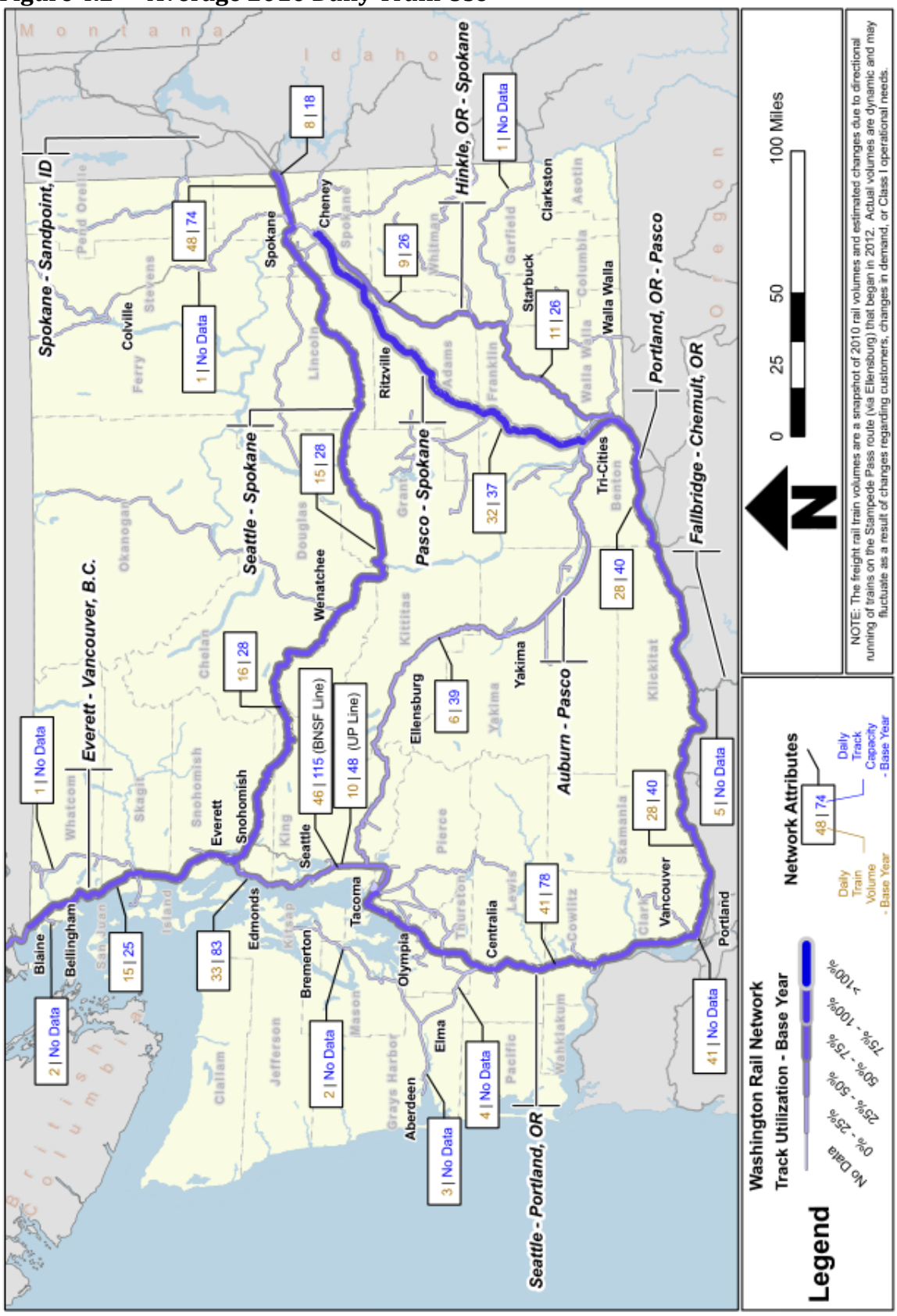
[23] Utilization is defined as the ratio of demand to available capacity.

This analysis suggests the following conditions by 2035:

- Pasco-Spokane at 170 percent utilization.
- Seattle-Spokane via Wenatchee at 150 percent utilization.
- Spokane-Hauser Junction, Idaho at 150 percent utilization.
- Vancouver-Pasco at 140 percent utilization.
- Seattle-Portland and Everett-Burlington are just under the 100 percent utilization mark, which would make it difficult to handle variations or additional traffic without adding excessive delays.

The State Rail Plan provides a demand and capacity analysis based on industry-standard methodology using best available data. This analysis represents just one perspective on how freight rail volumes will change over time. Other freight rail forecasts, such as the Washington Public Ports Association's 2011 *Marine Cargo Forecast* and the U.S. Energy Information Administration's *International Energy Outlook 2013*, project different volumes, particularly for specific commodities such as coal. If growth occurs more rapidly than forecast, then the primary change is that projected volumes would be reached sooner.

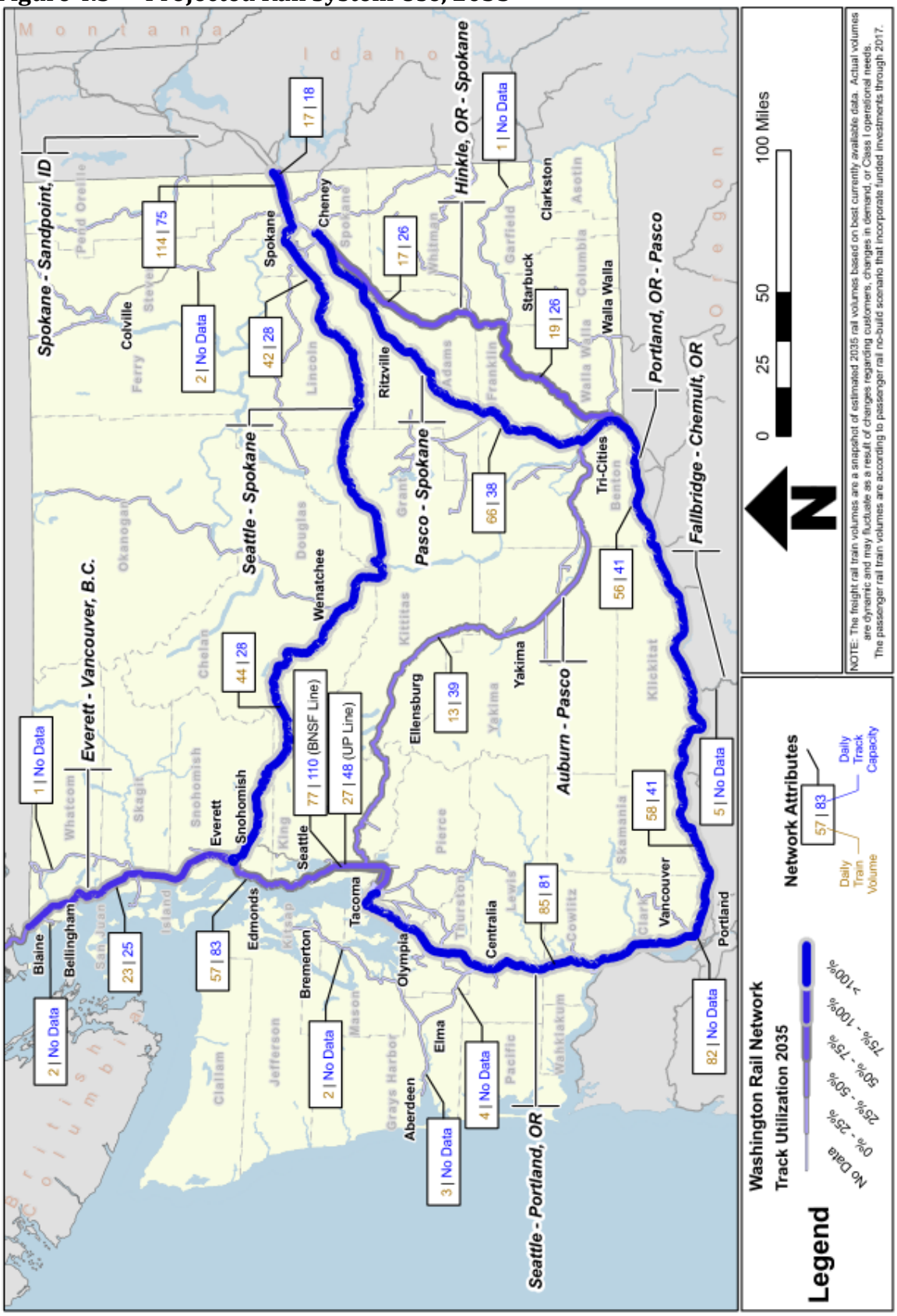
Figure 4.2 Average 2010 Daily Train Use



Sources: BNSF 2010 Train Counts Data; UP 2012 Q1 Train Counts Data for Spokane-Eastport, Idaho corridor; and Cambridge Systematics' Estimation of 2010 Train Volumes using 2010 STB's Confidential Waybill Sample Data and TransCAD Model of ORNL's Rail Network.

Note: Reflects directional running of trains on the Stampede Pass route (Auburn-Pasco via Yakima), which was implemented by BNSF in 2012.

Figure 4.3 Projected Rail System Use, 2035



Sources: BNSF 2010 Train Counts Data for Washington; UP 2012 Q1 Train Counts Data for Spokane-Eastport, Idaho corridor; Cambridge Systematics' Estimation of growth factors between 2010 and 2035 for Train Volumes using a TransCAD Model of ORNL's Rail Network; and Capacity Analysis using the 2011 BNSF Northwest Division timetable data, 2011 BNSF R 1 report data and Washington Rail Plan GIS data.

Note: Reflects directional running of trains on the Stampede Pass route (Auburn-Pasco via Yakima), which was implemented by BNSF in 2012.

Freight Movement Definitions

Inbound: freight that is brought into the state by rail, shifts mode to boat at a Washington port, and then exported from the state.

Outbound: freight that leaves the state by rail. Includes movement of Washington agricultural products to the eastern U.S. as well as goods brought to Washington by ship, transferred to rail at a marine port in Washington, and then transported east or south to other markets.

Through: freight that is brought into Washington by rail, and is carried by rail outside the state.

Intrastate: freight that is starts its rail journey in Washington and also ends its rail journey in Washington.

Demand and Capacity Analysis Methodology

The discussion in this section about current and future freight demand and its impact on Washington's rail network utilizes a standard methodology that relies largely on publicly available data. The primary sources are the Surface Transportation Board's 2010 Carload Waybill Sample, a detailed historical record of freight traffic; the FHWA's Freight Analysis Framework 3.3 (FAF 3.3), a dataset containing historical and projected freight flows for all major modes; and, the FRA/Oak Ridge rail networks, which describe the physical attributes of the rail network. Additional key inputs, including train counts, were provided by the railroads.

Underlying the analysis of future freight demand in 2035 is an economic forecast that is incorporated into FAF3.3. Developed by IHS, this forecast reflects long-term macroeconomic and demographic trends as of the second quarter of 2010. As such, it offers a general perspective on future economic activity, and can serve as a baseline against which future rail network utilization and capacity needs can be examined. The forecast does not take into account specific known or potential developments, such as the scheduled closure of a coal-fired generating station, construction of new terminals for shipping coal and crude oil, or shifts in container shipping economics arising from the adoption of new technologies.

Train volumes are dynamic and have changed since the 2010 data was published. For example, operational changes in mid-2012 led to increases in volume over the Seattle-Pasco Stampede Pass route; the base year map shown in Figure 4.2 reflects this change.

Characteristics of Washington's Freight Traffic

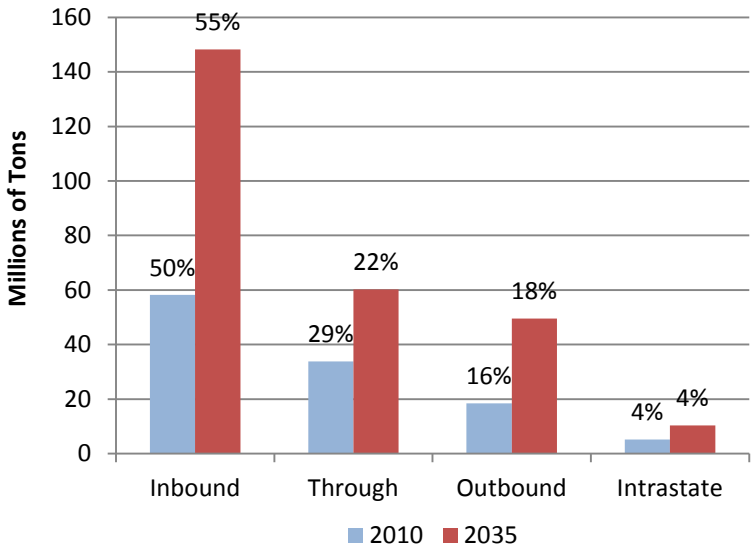
The freight handled on Washington's rail network reflects the industrial base of the state, its demographics, domestic and international trade that flows through the state, and the characteristics of rail and competing modes. Notably, Washington's economy is driven by trade with other states and countries. Freight volumes are indicative of this characteristic, for which rail plays a central role. In 2007, rail handled approximately 41 percent and 83 million tons of all interstate tonnage where Washington was either an origin or a destination. [24] Much of this traffic consists of high volume bulk goods and manufactured products in international trade, the characteristics of which are highly suitable for rail transport.

Consistent with Washington's trade-oriented economy is the nature of rail flows by direction of travel, shown in Figure 4.4, as well as the commodities handled by rail, shown in Figure 4.5. On a tonnage basis, half of all rail traffic with a Washington destination in 2010 came from out-of-state. The vast majority of this volume was associated with bulk commodities, notably various field crops and agricultural products. Most of this traffic, which arrives from the Upper Midwest in unit trains, is

[24] FHWA Freight Analysis Framework 3. On an overall basis, including intra-state traffic, rail accounted for approximately 100 million tons and 20% of total volume.

destined for export through the Central Puget Sound region[25] and Peninsula/Southwest region ports. For example, the Port of Seattle's *Century Agenda* envisions the addition of 100,000 jobs in the next 25 years by growing its annual container volume to more than 3.5 million TEUs. By 2035, inbound traffic is projected to become even more dominant, accounting for 55 percent of all rail traffic and an increase to 150 million tons.

Figure 4.4 Rail Volumes by Direction of Travel, 2010 and 2035



Source: Cambridge Systematics' 2035 Freight Rail Flows Forecasting.
Note: Direction of travel is given from the perspective of the rail system. Thus, inbound traffic includes freight that is brought into the state by rail, shifts mode to boat at a Washington port, and then exported from the state. Likewise, outbound traffic includes shipment of Washington agricultural products by rail to the eastern U.S., as well as goods brought to Washington by ship, transferred to rail at a marine port in Washington, and then transported east or south to other markets.

Outbound traffic represented 16 percent of all rail traffic and approximately one-third of inbound volume in 2010. This volume is associated with imported consumer goods in containers, assembled motor vehicles, forest products, agricultural products and various specialty cargoes. By 2035, outbound volumes, led by increased intermodal traffic, are projected to grow in relative importance, from 16 to 18 percent of all traffic.

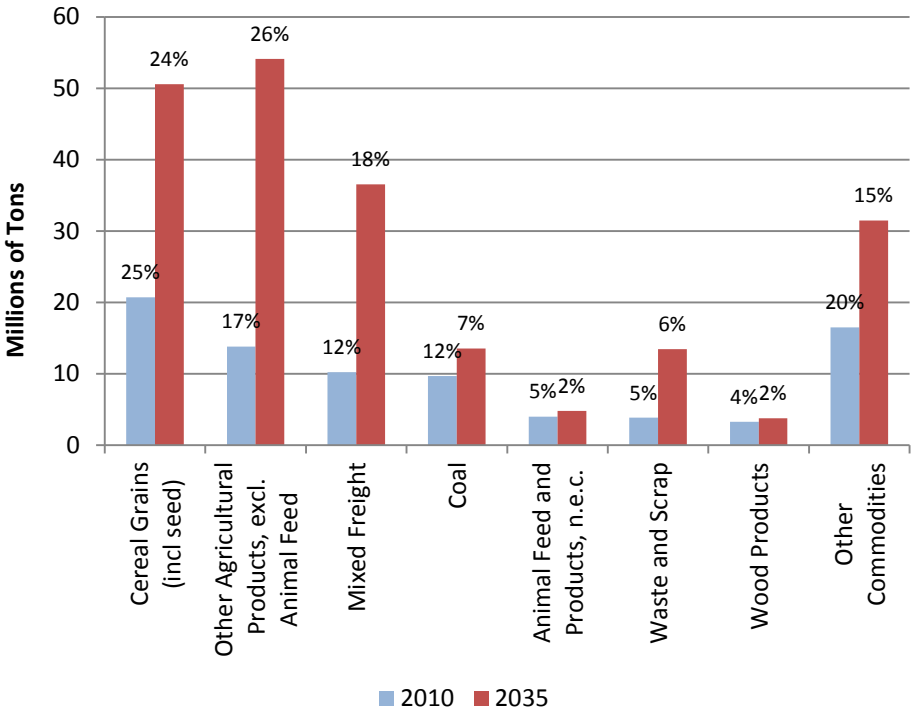
[25] Definitions of regions in Washington are located in Technical Note 3a: *Freight Rail Demand, Commodity Flows, and Volumes,* an Appendix to this document.

Representing 29 percent of the volume in 2010, the second largest category of traffic had neither an origin nor a destination in the state. This reflects the geographic location of Washington in the Pacific Northwest, and the alignment of BNSF's Northern Transcon route, which funnels all traffic associated with the Pacific Northwest through Washington.

The smallest category, intrastate, amounted to less than 4 million tons in 2010 and 4 percent of all rail traffic. This includes 1.7 million tons of waste and scrap, and 1.2 million tons of cereal grains.[26] In general, railroads favor long-haul movements with a high density of traffic, with moves of less than 500 miles tending to be less desirable operationally and financially. By 2035, volumes are projected to remain small, but nevertheless doubling to 8 million tons. Perhaps the outcomes in this category may be the most variable, given that this market is most sensitive to relative shifts in modal competitiveness, regional economic development, and state transportation policy.

New coal export terminals proposed for construction in Washington state and elsewhere in the Pacific Northwest (including British Columbia) are not specifically included in the forecast. If completed, these projects could further increase the demands placed on the state's rail system and accelerate the rate of growth so that capacity limits on the existing system will be met sooner.

Figure 4.5 Top Rail Commodities by Tonnage, 2010 and 2035
Originated and/or Terminated in Washington State



Source: Cambridge Systematics' 2035 Freight Rail Flows Forecasting.
Note: n.e.c. = not elsewhere classified. Commodity classification based on 2-Digit Standard Classification of Transported Goods (SCTG).

[26] Ibid.

Trends that May Affect Freight Rail Demand

The State Rail Plan provides a demand and capacity analysis based on industry-standard methodology using best available data. This analysis represents just one perspective on how freight rail volumes will change over time. Other freight rail forecasts project different volumes, particularly for specific commodities such as coal. If growth occurs more rapidly than forecast, then the primary change is that projected volumes would be reached sooner.

Factors that could significantly affect future rail volumes include:

- ***New bulk exports.*** The most significant near-term development facing Washington's rail system is the introduction of additional coal traffic that would be exported from the Pacific Northwest to Asia. The source of this coal would be the Powder River Basin, which now has an excess of production capacity following declines in domestic demand. Currently, several proposals are under consideration to enhance port capacity, including two potential sites in Washington: Cherry Point and Longview. The development of these terminals, or similar facilities in Oregon and British Columbia, will increase train volumes in Washington. For example, the development of a bulk export facility at Cherry Point in Whatcom County, if developed as planned, could add up to eight coal trains and one train handling other dry bulk products each day to the Seattle to Everett segment (each one arriving full and leaving empty for the return trip). More information is expected to emerge during the environmental review processes currently underway.

  Parallel to the development of new coal export capacity, discussions are underway to develop high-capacity transfer and storage facilities for crude oil. This oil would come from the Bakken formation in North Dakota and Saskatchewan, and shipped to West Coast refineries by ship from ports in the Pacific Northwest. At present, U.S. produced oil can only be refined at U.S. refineries, while the Canadian oil could be exported.

  Increased demand for other bulk exports, such as potash, ore, grain and other dry bulk cargos could also contributed to freight rail volumes that exceed current forecasts.

- ***Volatility in global sourcing.*** For many years, a consistent story has been the shift in manufacturing from western countries to Asia, China in particular. The primary basis for this trend was inexpensive labor and cheap transportation. Rapid increases in Chinese production costs, along with other factors such as growing transportation costs, are leading to more diversified sourcing

strategies. These include relocation of some manufacturing to the North American Free Trade Agreement (NAFTA) region, as well as to other regions of the world. These shifts will impact how and where goods enter the U.S., their volumes and thus the use of the transportation system.

- ***Adoption of larger container ships and expanded capacity on the Panama Canal.*** Washington's container ports compete with other Pacific Coast ports for traffic destined for inland locations, and minor changes in container vessel operating economics, port costs, and inland service offerings can shift traffic from one port to another. The relative stability of recent years in this arena may undergo a major upheaval in the coming decade as the adoption of larger container ships reduce the number of ports on-call, and the expanded canal lowers the costs for all water service to the U.S. Gulf and East Coast ports. Opinions on the impacts of these changes are mixed.

- ***Shifting modal economics between rail and truck.*** In recent years, the relative costs for trucking have risen more rapidly than rail, primarily due to increased operating costs brought about by driver qualification requirements, tightening of the Hours of Service regulations, labor shortages, increased highway congestion, as well as an increase in underlying costs, particularly for fuel. These increases have allowed the rail industry to achieve modest market share gains in certain segments, while also improving financial returns and expanded capital programs. Many industry analysts argue that these trends are likely to continue.[27] However, these potential gains could be more than offset by proposed increases in the federal truck size and weight limits, which would provide productivity gains to trucking firms that will tilt modal economics towards highway transport. Short-line railroads are likely to be affected disproportionately, given their heavy orientation towards small volume carload traffic hauling commodities that are most readily divertible to truck.

- ***Fluctuating fuel costs and potential conversion to alternative sources of energy.*** Presently, fuel comprises over 20 percent of rail operating costs, and over 40 percent of motor carrier costs, making transportation costs very sensitive to fuel prices. The advent of low cost natural gas offers a potential savings on an equivalent energy basis of as much as 70 percent. For example, rapidly falling costs of liquefied natural gas (LNG), which is now approximately one-third the cost of diesel fuel, have encouraged a new look at using

[27] www.nears.org/images/Tony%20Hatch-ABH%20Consulting.pdf.

this fuel for powering trains. In 2013 BNSF reported that it will begin testing a small number of locomotives using LNG. While the incentive to convert is strong at present, technological hurdles for both railroads and long-haul trucking are substantial.

Challenges and Other Issues for Class I Railroads

Potential Responses to Increased Demand for Rail

The future year projections of freight volumes suggest that several primary Class I rail corridors in Washington state will require capital improvements and/or operational changes to accommodate growing volumes while maintaining reliable service. Information about some of the improvements planned by the Class I railroads is provided in Technical Note 5: *Rail Investment Plan*.

Stakeholders voiced concern about how growing rail volumes will affect access to the Class I railroad system by Washington industries and passenger rail services. As common carriers,[28] the railroads move people and goods as part of their business model as well as in response to federal law. Providing capacity to serve customer demand is part of their business and is accomplished with various strategies, including capital improvements, operational changes, as well as marketing and pricing actions.

It is important to understand that rail capacity is not static. The volume of traffic that can be accommodated depends not only on infrastructure, but also on the railroad's operating strategies, traffic mix, use of technology and many other business decisions.

As an illustration, consider a congested roadway intersection. Widening the roadway to add through lanes and turn lanes is one way to address capacity, but it's not the only way. Engineers can employ turn restrictions, signal timing optimization and signal coordination to improve efficiency. Several other factors affect throughput, including the types of vehicles (passenger cars, semi-trucks) and travel speed.

Similarly, railroads typically respond to growth in freight demand with concurrent impacts on their infrastructure through a mix of operational strategies and capital improvements including:

- Operation of longer trains.

[28] Common carriers are defined as any company or person who is transporting property other than household goods for compensation within the state of Washington. www.utc.wa.gov/regulatedIndustries/transportation/commonCarriers/Pages/default.aspx.

- Schedule and train speed adjustments.
- Where multiple routes are available, segregation of traffic by direction and/or type (e.g. separate bulk from intermodal, etc.).
- Application of advanced traffic management systems that improve meet/pass planning, management of train speeds and a reduction in headways.
- Construction of additional main track, new and/or lengthened passing sidings.
- Expansion of industry, yard and terminal facilities.
- Installation of signals and/or improvements to existing signal systems, including the installation of Centralized Traffic Control (CTC).[29]

As private businesses, railroads seek a Return on Investment (ROI) on their capital investments that exceeds a threshold, which varies based on the cost and availability of capital at the time the investment is being considered. Often, the risks associated with a new investment exceed the likely benefits, and the railroads will choose to make business adjustments instead. These include selective price and service level changes, which directly impact capacity needs. Most commonly, these take the form of pricing actions, service frequency and provisioning of cars for loading, if they are supplied by the railroad. The impact of these decisions can negatively affect shippers and short-line connections by increasing their direct and indirect costs.

The state can influence potential capital investments by BNSF and UP by participating as a funding partner in capital improvement projects. A key policy question is what interest and role the state has in the rail networks in Washington. Ultimately this boils down to the analysis of potential public benefits relative to the proposed public investments and/or involvement in the Class I rail system in Washington. The State Rail Plan addresses policy relating to public private partnerships in Chapter 6.

With regard to passenger service, there are agreements in place that govern how passenger service may be affected by growing freight volumes. Service Outcome Agreements, signed by BNSF and WSDOT, guarantee 88 percent on-time performance reliability for all Amtrak Cascades scheduled passenger service for both the Seattle to Portland and

[29] CTC is a form of railway signaling that consolidates train routing decisions that were previously carried out by local operations.

Seattle to Vancouver, B.C. segments by 2017. These agreements support passenger rail system performance related to the high-speed rail projects.[30]

Other agreements held by BNSF with Amtrak and Sound Transit reserve capacity for other passenger rail service in Washington. These agreements remain in effect regardless of any new freight rail demand. Additional passenger rail service would require new negotiations with host railroads, likely resulting in requirements for additional public investment.

Corridor Partnerships as Models for Collaboration

Efforts elsewhere on the west coast to improve transportation corridors can serve as models to maintain and improve upon Washington's current successes. Maintaining and improving reliable rail service could increase the attractiveness of Washington ports for discretionary cargo, and could contribute to increased competitiveness for Washington state ports. Importers and exporters have flexibility in their choice of port, and could use the ports in Vancouver, B.C., Prince Rupert, or California to reach interior markets. In addition, the newly expanded Panama Canal,[31] once completed, could create new demand for Pacific Rim trade at ports along the U.S. Eastern Seaboard (including Miami, Savannah, Norfolk and others).

If surface transportation capacity or efficiency is harmed, Washington ports could become less attractive to ocean carriers, leading to a loss of business and export opportunities. To ensure this does not happen, bottlenecks at intermodal terminals and on the trunk network must be addressed.

East-West Capacity Constraints Will Need to be Addressed

Capacity constraints along the state's three east-west rail corridors have been a recurring issue, as they affect the competitive position of the Puget Sound ports as well as the region's freight shippers and short-lines. While the combination of diminished freight volumes and actions by BNSF to implement directional running over Stampede Pass have deferred the immediate need for more extensive action, ensuring the availability of adequate east-west capacity is vital to the future of rail service in the Puget Sound region. Previous examinations of this issue have identified a range of solutions with greatly varying costs and potential benefits. These should be revisited.

Relationships Between Communities and Class I Railroads

Anticipated increases in Class I freight rail traffic will result in increased delays at grade crossings and increasing noise through these communities.

[30] The WSDOT-BNSF-Amtrak Service Outcome Agreement imposes requirements through 2037.

[31] www.pancanal.com/eng/expansion/.

These impacts can be addressed through a variety of potential operational measures and capital investments that could involve state participation. Further discussion and recommendations for a potential state role in addressing increased Class I freight rail traffic is provided in Chapter 5 of this plan.

4.1.b Short-line Railroads

Short-line railroads (Class III railroads have revenues of less than $34.7 million) provide a vital link to the two Class I railroads in Washington state and provide access to the national freight rail network. Switching or terminal railroads (i.e., railroads that engage primarily in switching and/or terminal services for other railroads) are also considered short-line railroads.

Seattle Workshop Feedback: Additional public private partnerships could be beneficial to Washington's rail system.

There are about 1,458 miles of short-line railroad track in Washington, about 40 percent of the total rail mileage in the state. By mileage, roughly 50 percent of the short-line railroad infrastructure in Washington state is publicly owned. In addition to state ownership of over 300 miles of track, a number of counties, cities and ports also own rail infrastructure. Some of these lines have been in public ownership for many years, while others were more recently acquired in reaction to a potential abandonment. In addition to the initial investment in the purchase, a systematic, preservation and maintenance plan by the owner is imperative to ensure long-term sustainability.

State Role and Interest – Connecting Communities to the National System

Short-line railroads provide transportation options that enable economic development opportunities not otherwise available to cities, counties and shippers of agricultural products, forest products and manufactured goods. Thus, Washington's short-line railroads are tied to the economies of the region in which they operate, including industries of great importance to the state, such as agriculture, food processing, forestry and industrial manufacturing.

Spokane Workshop Feedback: Many small businesses rely on short lines. There is a public and economic incentive to invest in them.

Washington State Law directs WSDOT to invest in the short-line rail system to address a number of transportation needs. Most important is the fact that, in the absence of short-line railroads, freight currently carried on rail would likely be diverted to more trucks using Washington's roads. This would increase wear and tear and associated roadway maintenance costs, as well as increase the safety concerns caused by potential truck/vehicle interactions. In addition, short-line rail provides cost-effective service to important industries, in particular, those in rural areas or with limited road access. Finally, in some areas, they provide a competitive service to trucking, which can improve the cost effectiveness and reliability of shipping.

Existing and Future Conditions

Strengths of Short-Line Railroads – Serving Washington

Short-line railroads are often noted for providing personalized services and being proactive at resolving service issues. Short-line railroads are

also noted for being innovative and actively involved in economic development efforts in the regions in which they operate.

Provide Transfers and First and Last Mile Connectivity

Short-line railroads often provide first and last mile connectivity,[32] not only for the national rail network, but also to multimodal connectors. According to the American Shortline and Regional Railroad Association, regional and short-line railroads originate or terminate one out of every four carloads moved by rail in the United States. Anecdotal information suggests that rail-served industrial sites are a limited and valuable resource throughout the state. In some cases, these sites have been redeveloped into retail centers or truck-oriented industrial parks, essentially eliminating the opportunity for new rail freight generating or rail freight receiving businesses moving in at a later date. Providing rail access via short-line connections or rail spurs to industrial sites can help to attract existing businesses, and therefore may be an economic and employment growth tool.

Short-line railroads increasingly connect to trucks and the Columbia/Snake River system, usually through terminals and ports that allow goods to be transferred between rail and other modes, such as container ships or trucks. These connections provide shippers with decreased costs and greater flexibility to meet customer requirements. The Washington Grain Train moves wheat from the Palouse region of Washington to a grain elevator on the Columbia River, where it then moves by barge from Wallula to one of the lower Columbia River ports for export.[33]

Class I railroads provide shippers, located on short-line railroads or within port districts, critical connectivity to the entire North American rail system as well as connectivity to other modes of transportation.

Challenges and Other Issues

Modernization and Compatibility with Class I Railroads

Class I railroads encourage efficiency and modernization by providing shippers with incentives to ship larger quantities of product. While increasing efficiency is a long-term benefit, it requires short-line railroads to make costly improvements to bridges or track in order handle the increased tonnage. This can be seen in the adoption of 286,000-pound capacity rail equipment. Only a portion of the state's short-line rail

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[32] First and last mile connectivity means providing a link in the supply chain connecting shippers to point of origin and destination. Typically, short lines connect origin and destination to the Class I network.

[33] www.wsdot.wa.gov/Freight/Rail/GrainTrain.htm.

infrastructure can handle these heavier cars. It will be critical for the future success of Washington state short-line railroads to make these improvements. In addition, Class I railroads often influence the rates short-line railroads can charge to customers. Class I railroads also often supply equipment and control the condition or quantity of rail equipment available to short-line railroads. Bottlenecks can form when Class I railroads change or place limitations on the interchange or connection between the short-line railroad and the Class I. Class I railroads often require that short lines, or the shippers located on them, have an ability to originate or terminate bulk trains up to 110 railcars in length.

Challenges of Deferred Maintenance and Low Volumes

Many short-line railroads were created from lines that were determined as no longer being viable by their previous Class I owners. Some short-line railroads continue to struggle to overcome decades of deferred maintenance along their right of way. Maintenance needs often compound over time, making deferred repairs more costly than if they had been addressed in a timely manner. In addition, substandard or nonexistent maintenance programs do little to instill confidence in attracting new businesses or encouraging past shippers to return to rail transportation.

Some short-line railroads rely on public funding for all or a part of their maintenance and preservation programs. Historically these programs, including WSDOT's Freight Rail Assistance Program (FRAP) and the Freight Rail Investment Bank (FRIB), have received applications for funds that far exceeded the dollars available. A description of these programs will be discussed in Chapter 6.

The future of Washington state's short-line railroads is very much tied to the success of the state's Class I railroads and the entire national rail network. Successful short-line railroads will align with Class I railroads in implementing new technology, and increasing efficiency and streamlined marketing. This can only be achieved if short-line railroads are able to overcome the deferred maintenance of their infrastructure and succeed in profitably growing their businesses.

Abandonments Threaten Some Rail Corridors

While abandonments and rail banking[34] of surplus rail infrastructure have slowed in recent years, short-line railroads, with a history of deferred maintenance and marginal growth opportunities, remain at risk of eventual abandonment. The loss of this infrastructure would add costs to shippers and limit economic growth potential in the cities and counties along the impacted right of way.

[34] Preserving rail corridors that are not presently needed by way of a federal program. These corridors are often repurposed to other uses, such as bike trails, until needed.

Rail Abandonments

Railroad consolidations and abandonments continue to this day, in particular on short-line railroads that are unprofitable or seeing a declining number of customers. Abandonment of a rail line can mean the loss of a valuable transportation asset, and can be economically challenging to industries or cities that rely on it. A loss of rail service can also result in greater impact to local roads and state highways. Thus, there may be public benefit to preserving rail infrastructure. Washington already has two dedicated programs for investment in rail: FRIB and FRAP.

A rail line is abandoned when a rail carrier has filed for abandonment with the federal STB, and subsequently ends its obligation to operate service. In general, abandonments reached their peak in the mid-1980s, after the Staggers Rail Act deregulation, which allowed Class I railroads to dispose of underperforming lines more easily. In order to improve their financial performance, the railroads sold some of their lines, which had low traffic density. While the most marginal lines were abandoned, many were sold or leased to short-line operators. Subsequently, these operators either succeeded in improving the lines' financial performance through lower operating costs and improved service, or were eventually forced to cease operations. Thus, where abandonment applications were once primarily a Class I phenomenon, in recent years, a growing portion of line abandonments has been filed by short lines.[35]

According to the STB, most abandonment applications are filed by the rail carrier who is the owner of the track in question. The most frequent types of abandonment request the STB receives are from a railroad stating that the track has not been used for two years or more ("Notice of Exemption") or that the track has so little traffic on it that it is clear that the carrier could not be making a profit on it ("Petition for Exemption").[36]

In Washington, a total of 1,975 miles of rail lines were abandoned between 1953 to 1998. Between 1998 to 2011 a total of 74.8 miles of railroad right of way were filed for abandonment, of which 59.3 miles (79 percent) are currently rail banked.[37] Throughout this latter time period there were more filings by short lines than by the Class I railroads, with 52 miles filed by various short-line railroads and only 22.8 miles of rail right-of-way abandonments by BNSF. The Washington state abandonments and rail banked lines as of 2011 are shown in Figure 4.6.

There are two main issues of abandonments. The first is loss of transportation options to current and potential industries. The loss of a rail line (similar to the loss of any transportation resource) means less connectivity to the transportation system, which is counter to the vision of Washington's freight transportation system. The loss is not limited only to existing industries, but also potential new industries. Thus, a well-designed regional economic development strategy will often try to capture business from new industries.[38]

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[35] Source: Cambridge Systematics; Reworded text from Washington State Freight Rail Plan, 2010.

[36] Source: www.stb.dot.gov/stb/public/resources_abandonment.html.

[37] This data source is the 2012 WSDOT Railroad GIS layer. The term "rail banking" is a method by which lines proposed for abandonment can be preserved for future rail use through interim conversion to trail use. It is discussed more in Technical Note #2: *Freight and Passenger Rail Inventory*.

[38] See for example the Pennsylvania Joint Rail Authority's Study: www.sedacograil.org/Pages/Home.aspx.

The second issue is that once abandoned, a rail line is very difficult to reconstruct. For one, the line is often physically removed, meaning that it would have to be rebuilt to be used. In addition, right-of-way encroachments have often worsened to the point that rail service would be seriously impeded by the encroachments (uses such as houses or other sensitive land uses have grown closer to the rail right or way, making the conversion back to active rail service a potential source of community opposition). Finally, alternative uses such as rail-to-trail have very strong political constituencies, which can make it very difficult to convert the right of way back to active use.[39]

It is very difficult to calculate the economic impact of these abandonments. In some cases, the impacts may be small—for example, if businesses are easily able to switch to a different transportation mode. In other cases, the impacts may be severe, and result in significantly higher transportation costs and accompanying rising costs of business. Some states have conducted rail abandonment impact studies to quantify the effect of short-line rail abandonments through a benefit-cost analysis. For instance, Kansas Department of Transportation estimated that abandonment of short-line railroads in the state resulted in $58 million in road damage costs, $20 million in transportation and handling costs and $1.3 million in incremental highway safety costs. If Kansas farmers were to absorb these costs, the farm income would decline by $20.5 million. Based on such figures, different recommendations are proposed to avoid such costs and save short-line railroads in a systematic manner.[40]

CW Branch of the PCC

Washington state's 2007 purchase of the CW Branch, part of the Palouse River and Coulee City Railroad System, is an example of a short-line rail project where public benefit justified public participation. In this case, the previous owner determined that existing traffic volumes were insufficient to provide for the very large costs of deferred maintenance. The line was therefore threatened with abandonment. However, grain growers in eastern Washington appealed to the state for assistance, citing the fact that they would incur higher shipping costs by truck if the rail line were abandoned. In response, Tthe state agreed that the social cost of adding trucks to the road justified the maintenance of the CW Branch, and purchased the line in 2007. It is now operated by Eastern Washington Gateway Railroad (EWG), under a lease agreement with WSDOT. The CW Branch saw record carloads in 2011 and again in 2012 showing shippers are benefiting from the state's investment.

BNSF Railway's Eastside Rail Line

In 2003, the BNSF Railway indicated that it was considering the abandonment of service on most portions of this rail line

A regional effort by the PSRC determined that there was a public interest in preserving the BNSF Eastside corridor and that it had value for potential multiple uses, including rail and trail functions.

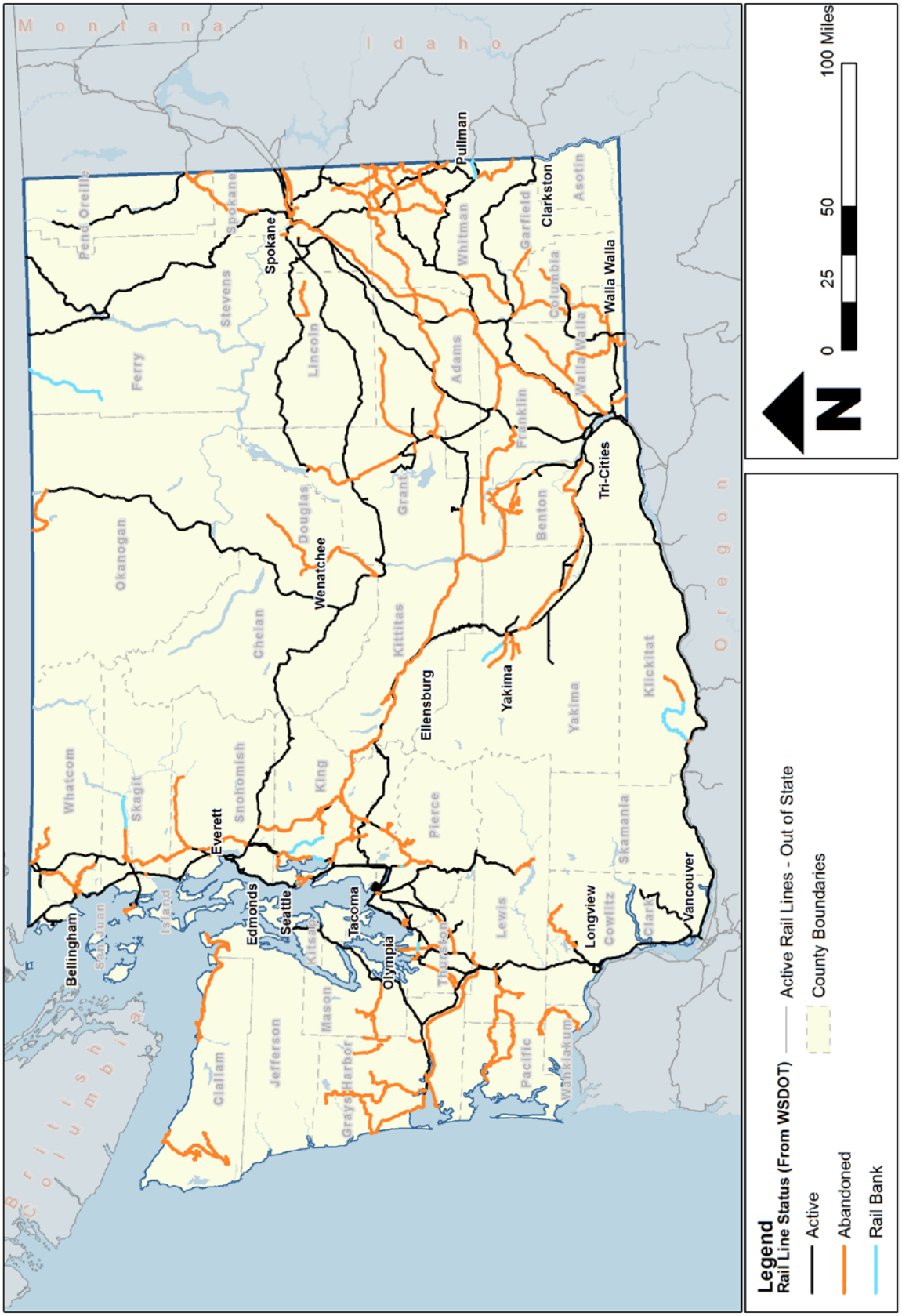
In 2009, the BNSF Railway sold the Eastside corridor to the Port Seattle. The Port of Seattle in turn negotiated a Memorandum of Understanding with Puget Sound Energy, King County, Sound Transit, the Cascade Water Alliance and cities of Kirkland and Redmond, whereby these entities would purchase portions of this corridor from the Port. As a result of the Port/local entity MOU, the Port sold an easement to King County, which has expressed interest in developing a multi-use trail along the Woodinville to Bellevue portion of the rail line. The city of Kirkland also purchased a portion of the

[39] Reworded from Washington State Freight Rail Plan, 2010.
[40] www.ksdot.org/burrail/rail/publications/Impact2003.pdf.

BNSF Rail line through its jurisdictional boundaries. The city has secured funding to remove railroad track and construct a multi-use trail that will serve the city and a newly developed Google Company office park.

There is existing freight rail service that operates on the north-end of the corridor between Woodinville and Snohomish. The Eastside Rail operates service on Woodinville-Snohomish portion of the line several times per week or as required by customer demands. There is no freight rail service south of Woodinville provided by Eastside Rail or any other operator.

Figure 4.6 Active, Abandoned and Rail Banked Infrastructure in Washington



Source: WSDOT

4.1.c Terminals and Yards

Railway terminals and yards serve different functions, including:

- Terminals provide access to the rail system, typically through a transfer between highway or water and rail. The transfer can take place in the form of shifting an intact container or truck trailer holding goods from one mode to another, or moving the contents from a truck or vessel to a railcar. Common commodities that are transferred in this manner include bulk goods (dry or liquid), such as grain, cement, vegetable oil, and pellets made of plastic; assembled motor vehicles; and project cargoes, such as electrical transformers and windmill parts. Washington produce and processed foods are often transported by rail, such as apples, wheat and frozen potatoes. Facilities where trailers and containers are transferred intact between modes are typically called intermodal terminals. The Washington State Freight Mobility Plan (scheduled for 2014) will provide more detailed information about these multimodal terminals.
- System, local and industry yards serve various functions in the handling of carload rail traffic. As a rail car travels across the rail network from origin to destination, it goes through a series of rail yards, where trains are separated into single railcars or blocks of cars and sorted by subsequent destination, which could range from a train serving nearby industry to a yard thousands of miles away.

Multimodal Example:
Port of Quincy acts as a terminal for Cold Train LLC and BNSF. Cold Train schedules trucks around Washington State to pick up perishable fruits and vegetables. These trucks arrive at Quincy and are loaded onto railcars for transportation to consumers in the Midwest and Eastern US.

State Role and Interest – Key Links in Supply Chains

Terminals and yards facilitate the movement of freight by providing essential functions in support of other carriers.

As one example, intermodal terminals are key links in supply chains that use Washington's ports. They serve as the primary means of providing access to the U.S. interior. Intermodal terminals are especially important for Washington as they support the growing intermodal container trade of the Puget Sound region, which is expected to grow at a rate of 5 percent annually from 2010 to 2035.[41]

Another example is the Railex facility in Wallula. Port of Walla Walla acts as a terminal for Railex and UP. Added in 2006, this distribution center serves as a node for truckloads of perishable fruits and vegetables to transport on the national rail network. These loads are containerized for ease of transfer.

[41] Source: Analysis of STB Waybill Data by Cambridge Systematics, included as appendices to this State Rail Plan, in particular *Technical Note 3a: Freight Rail Demand, Commodity Flows, and Volumes;* and *Technical Note 4a: Freight Forecasts and Capacity Analysis.*

Strengths of Terminals and Yards – Working Well

Analysis conducted with the State Rail Plan suggests that Washington state's rail system is managing current intermodal traffic well. The demand for intermodal rail service and its share of the total rail revenue generated has been growing over the past several decades. This trend has been driven by the continually improving competitiveness with over-the-road trucking, containerization of freight and declining direct access to the rail network for carload shipping.[42] In Washington, intermodal traffic accounts for 16.6 million tons, or 14 percent of the total commodity flows.

Challenges of Terminals and Yards – Road Impacts

Serving as a connection point for freight movement, intermodal terminals and yards attract considerable rail and truck traffic. The impact to highways and local roads surrounding intermodal terminals can be significant. In congested areas, freight trucks join many other types of traffic competing for limited capacity on the surface transportation system. Even more significantly, heavy vehicles are a major cause of pavement damage. To handle this traffic effectively, routes serving intermodal facilities must either be constructed to more robust standards or be rehabilitated more frequently than other facilities. In either case, heavy truck routes require significant additional investment.

[42] "Intermodal Trends: What Should We Expect in the International Supply-Chain System?" www.areadevelopment.com/specialPub/ldw07/ldwIntermodal.shtml.

4.2 Passenger Rail

Figure 4.7 Passenger Rail in Washington

Source: U.S. Depaterment of Transportation, Bureau of Transportation Statistics, Washington, D.C. (2010). National Transportation Atlas Database 2010.

Note: Stations are only shown for long-distance and intercity services. The more frequent stations for Sounder regional/commuter rail are, from south to north:

Passenger rail services provide high capacity transportation between locations served along their respective routes. Within the borders of Washington, these passenger services operate on tracks owned predominantly by BNSF (discussed in the previous section on freight rail). Each of the service classifications (long distance, intercity and regional/commuter) provides a unique role within the system for the respective routes.

4.2.a Long Distance – Coast Starlight and Empire Builder

Long-distance, multistate passenger rail services are provided by Amtrak's Empire Builder and Coast Starlight. These services have many things in common, and a few differences based on geography and markets served.

The trains are operated by Amtrak, using tracks owned by BNSF, UP and other railroads outside Washington and Oregon. These routes are funded by ridership revenue and federal subsidies, and are managed by Amtrak with no WSDOT involvement.

The Coast Starlight is a long-distance north-south train with one daily departure that travels 1,377 miles from Los Angeles in the south to Seattle in the north, with major stops in Oakland, Sacramento, Klamath Falls, Eugene-Springfield, Portland, Tacoma, and Seattle. The Coast Starlight serves six stations in Washington: Seattle, Tacoma, Olympia/Lacey, Centralia, Kelso/Longview, and Vancouver.

With one daily departure, the Empire Builder links Chicago with Seattle and Portland through Milwaukee, St. Paul/Minneapolis, Fargo, Havre, and Spokane. The route splits in Spokane, Washington, with the northern leg continuing west across Washington through Wenatchee and Everett to Seattle, while the southern leg heads southwest through Pasco and the Columbia River Gorge to Portland, Oregon. The Seattle to Spokane segment spans 326 miles while the Portland to Spokane segment spans 376 miles. The two trains meet in Spokane and continue 1,879 miles to Chicago. The Empire Builder calls at 11 stations in Washington, including Seattle, Edmonds, Everett, Leavenworth, Wenatchee, Ephrata, Spokane, Pasco, Wishram, Bingen-White Salmon, and Vancouver.

State Role and Interest – Connections beyond the Pacific Northwest

The National Railroad Passenger Corporation (Amtrak) is a federal corporation with direct oversight by the FRA, and has private contracts with freight rail infrastructure owners within Washington. Therefore, the state of Washington has a limited role and limited involvement with Amtrak's long-distance services.

Long-distance trains, including the Empire Builder and the Coast Starlight services, have played in important role in supporting the development of

regional intercity services. Their presence has allowed for the implementation of new intercity services, where it otherwise would be extremely difficult. The Pacific Northwest Rail Corridor (PNWRC) is one such example. Furthermore, by providing national connectivity, the long-distance trains feed traffic into the regional intercity services, and as these regional services grow, long-distance services stand to benefit, and vice versa.

One area where the state directly interacts with the long-distance trains is at train stations. Stations were once typically the responsibility of the owning railroad and perhaps Amtrak, in recent years the responsibility for stations has largely fallen on the communities. In Washington, the state has provided financial assistance for station projects served exclusively by Amtrak long-distance trains. One recent example is on the route of the Empire Builder at Leavenworth, where a new station was completed in 2009.[43]

Existing and Future Conditions

Ridership: Existing and Future

A common performance metric for passenger services is ridership. Historical and projected Empire Builder and Coast Starlight ridership is provided in Figure 4.8.

Overall volume trends have been positive since the early 2000s, and there is some evidence that growth would be higher if a static fleet had not suppressed demand. Nationally, Amtrak's intercity service also provides a mobility need, as it is the only scheduled passenger transportation option available in 51 mostly rural communities, and 174 communities that are outside the service areas of even the smallest "hub" commercial airport.

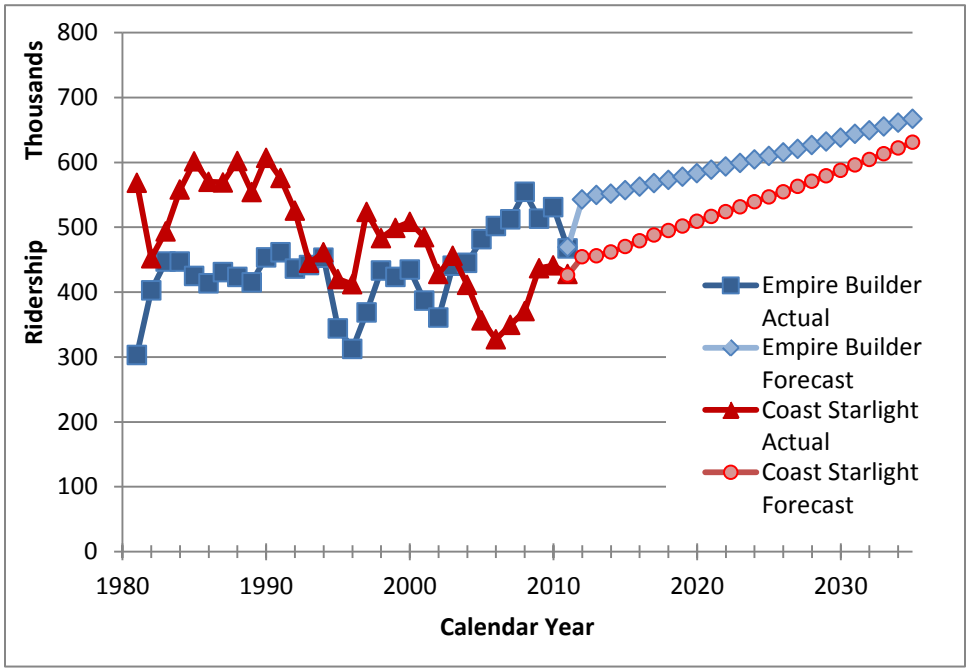
Ridership trends on Coast Starlight and Empire Builder were similar until 2004, when the Empire Builder ridership continued to increase and Coast Starlight ridership declined. The Coast Starlight's ridership peaked in the 1990s with approximately 607,000 passengers; Empire Builder's ridership peaked in 2008 with approximately 555,000 passengers. Both routes also saw a decline in ridership during the recent recession.

Despite a decline in observed ridership in 2011, overall ridership is expected to increase steadily through 2035 for both the Empire Builder and Coast Starlight (see Figure 4.8). Annually, ridership at Washington stations and the Portland, Oregon station contribute over 30 percent to route ridership on average for both routes. Ridership on the Empire Builder is projected to total 1.3 million in 2035, with 404,000 either

[43] www.greatamericanstations.com/Stations/LWA.

boarding or alighting from Washington stations and Portland. Coast Starlight ridership is estimated at 1.2 million with 395,000 from Washington stations and Portland. Each station is forecast to grow between one and two percent annually.

Figure 4.8 Empire Builder and Coast Starlight Ridership, 1981 to 2035



Source: Amtrak recorded ridership for 1981 through September 2012, Amtrak forecasts October 2012 through September 2017, and Cambridge Systematics calculations for October 2017 through 2035.

Variations in long-distance ridership have multiple causes, including general economic conditions, demographic trends, competitive options, frequency, service performance, available capacity and marketing strategy. Each of these factors has varied considerably over the years, thereby complicating efforts to draw substantive conclusions from the ridership trends.

Strengths of Long-Distance Passenger Service – Popular Services

The Empire Builder and Coast Starlight complement and enhance Washington's passenger transportation network. Amtrak reports that of the national long-distance routes, the Empire Builder and Coast Starlight have the highest ridership of the long-distance routes for the 2011 and 2012 reporting periods.

Challenges and Other Issues

Financial Challenges

Primary concerns affecting Amtrak's long-distance trains have been cost and use of the service when compared with other travel options. Frequencies on the national long-haul network are generally only daily, which limits travel options and thus the pool of potential users. Furthermore, reliability has been highly variable and speeds are modest, generally auto-competitive at best.

Cost recovery on the long-distance network has trended negatively in recent years, in part due to Amtrak rejoining the national operating rail labor agreements in 2005, limited seat capacity and an aging fleet of train cars and locomotives. A critical hurdle will arise in the next decade when the original Superliner fleet, which was built between 1978 and 1981, is due for replacement.

Unfavorable Schedules in Eastern Washington

WSDOT received feedback from stakeholders citing concerns about Empire Builder service to eastern Washington—in particular, arrival and departure times. This long-distance service is designed to serve anchor cities like Seattle, Portland and Chicago at optimal times. Arrivals and departures from other destinations are scheduled around these major markets. This results in late service to Spokane: arrivals and departures occur between midnight and 3 a.m.

More favorable arrival and departure times would boost ridership at Spokane and other locations in eastern Washington.

4.2.b Intercity Passenger Rail – Amtrak Cascades

Amtrak Cascades is a multi-frequency intercity service linking Vancouver, British Columbia (B.C.) with Eugene, Oregon (OR) via Seattle and Portland (467 miles). The route generally parallels I-5, calling at a total of 18 stations, 12 of which are in Washington. King Street Station in downtown Seattle and Portland's Union Station serve the largest number of passengers. Many stations also serve light rail, bus and pedestrian facilities, which provide multimodal connections for travelers.

State Role and Interest – State Sponsorship

As a state-sponsored asset, Amtrak Cascades is part of the state's strategy to provide a multimodal transportation system to move people and goods. Intercity passenger rail plays an especially important role in providing travel options that reduce reliance on single-occupancy vehicles along the I-5 corridor.

Existing and Future Conditions

Strengths of Amtrak Cascades – Growing Service

Annual ridership on Amtrak Cascades has grown from just over 180,000 in 1994 to more than 836,000 in 2012. Keys to success of the program include:

- Incremental approach
  - Adding service in steps to match development of the passenger rail market.
  - Project development to create eligible funding pieces.
- Collaborative planning and stakeholder engagement.
- Supportive Governor and legislative champions.
- Use all funding sources available (state and/or federal).
- Strategic rail plans.

Complex Operating Environment – Many Partners

WSDOT relies on many partnerships to deliver the service. These relationships are constantly evolving and will experience significant shifts as the states assume more responsibility for the service due to changes in federal law. WSDOT and Oregon Department of Transportation (ODOT) are beginning to manage the service as a single corridor to leverage resources and maximize benefits for the service. Washington and Oregon will pursue opportunities to strengthen British Columbia's participation through ongoing work of the Pacific Coast Collaborative and Washington-British Columbia Joint Transportation Executive Council.

To reach the vision for Amtrak Cascades, improvements will need to be made along the entire Pacific Northwest Rail Corridor, including locations in Oregon and British Columbia.

In addition to ODOT, Washington also works with public and private entities that take part in different aspects of Amtrak Cascades' operations. These partners are reimbursed by WSDOT and ODOT for their direct role in intercity service, often through agreements with Amtrak. Amtrak operates the service under agreement with WSDOT and ODOT. Talgo is responsible for equipment maintenance, also under agreement with the state agencies. The Class I railroads, BNSF and UP, own and dispatch for most of the corridor; BNSF is the primary track owner within Washington. U.S. and Canadian customs and border control agencies are responsible for maintaining and monitoring border security. WSDOT works with Sound Transit to coordinate schedules, deliver capital improvements and serve travelers with the RailPlus program. Other partners in Washington state include station owners, cities, counties, and public and private transit entities.

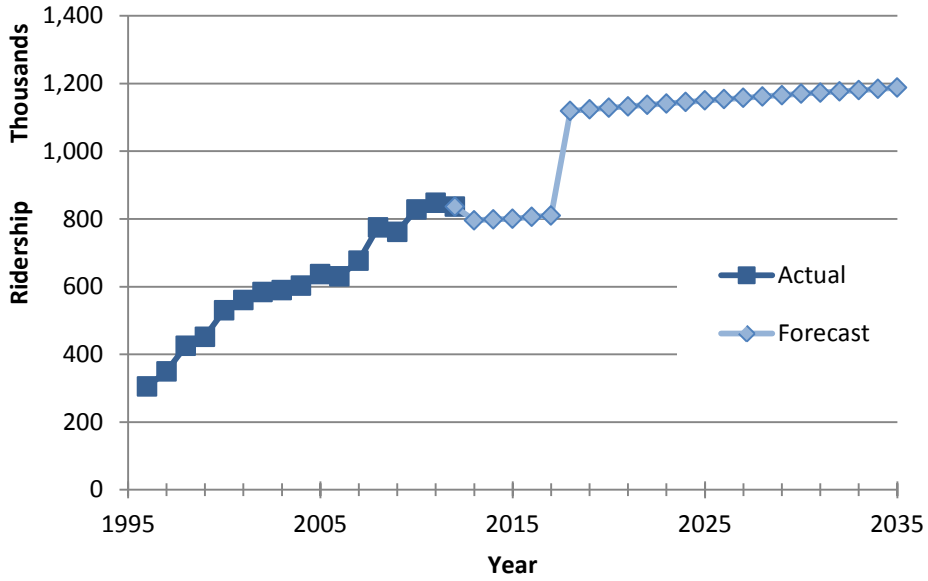
Ridership: Existing and Future

Passenger rail ridership is driven by a number of factors, including population and population density, average income, the type of rail service offered, the presence of competing transportation options (such as intercity air service, bus or highways), travel time, schedule reliability and travel costs. Figure 4.9 shows the Amtrak Cascades ridership from 1996 to 2035.

Total ridership on Amtrak Cascades has nearly tripled since 1996, with significant growth in the late 1990s as new services and equipment were added. In 2012 the most recent year for which complete data are available, total ridership was approximately 836,000.[44] Ridership is also highest during the summer tourist season in the second and third quarter of each year.

[44] This includes data for the entire Amtrak Cascades route; not just the state-supported trains.

Figure 4.9 Amtrak Cascades Ridership, 1996 to 2035



Source: WSDOT historical data and ridership model for Amtrak Cascades. Additional detail and forecast methodology found in Technical Note 4b: *Passenger Rail Ridership Forecasts*.

While underlying demographics and economics are drivers in future growth, the most significant growth for Amtrak Cascades is historically derived from service improvements. The anticipated jump in ridership from 2017-2018 (Figure 4.9) is associated with the completion of WSDOT's capital construction program in 2017. Currently rail provides only a fraction of intercity travel demand along the I-5 corridor. Therefore, the trend of large growth in ridership associated with service improvements (frequency, travel time, reliability) is expected to continue for the foreseeable future.

Finances and Farebox Recovery

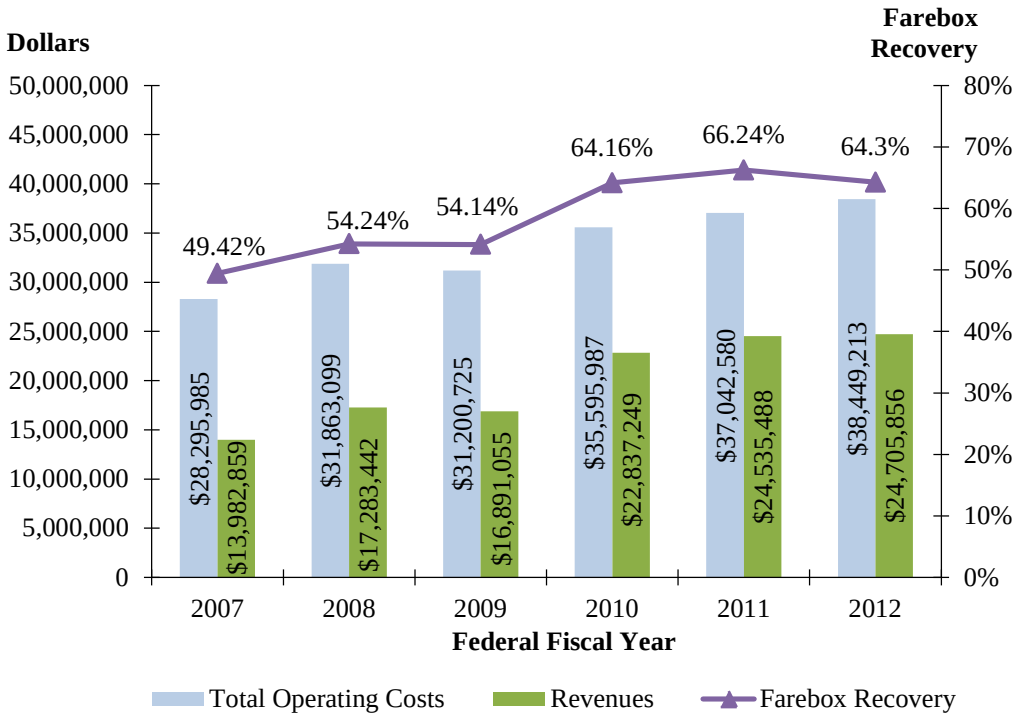
Amtrak Cascades is currently sponsored by Washington, Oregon and Amtrak. In 2012, ticket revenues supported approximately 64 percent of WSDOT's operating costs. The remaining costs are provided through public subsidy.

Congress enacted the Passenger Rail Investment and Improvement Act (PRIIA) in 2008. The law makes significant changes to intercity passenger rail service and the role of states in providing that service. As a result, states of Washington and Oregon will take on 100 percent of direct route costs for Amtrak Cascades daily routes starting in October 2013, which will increase both the revenues and operating costs for the states.

Comparing passenger rail revenues to operating costs yields a farebox recovery ratio, a relative measure of how much the state-supported

Amtrak Cascades service revenues compare to costs, as shown in Figure 4.10. The farebox recovery ratio has increased from 49 percent to 64 percent from 2007 to 2012. This measure compares favorably to California state-supported intercity passenger rail routes, which measure from 49 to 60 percent.

Figure 4.10 Washington-Sponsored Amtrak Cascades Trains Total Operating Cost, Revenue and Farebox Recovery Rate



Source: WSDOT Rail Division - Based on financial billing data from Amtrak.
Note: Amtrak Cascades farebox recovery ratio for FFY 2012 reached 64.3 percent, a drop from FFY 2011. The total revenue increased 0.7 percent while ridership dropped 1.4 percent and costs increased 3.8 percent.

Equipment Fleet: Locomotives and Trainsets

The Amtrak Cascades fleet currently consists of seven trainsets (sets of passenger train cars), which hold 270 passengers per trainset on average. Three trainsets are owned by WSDOT, two are owned by ODOT and two are owned by Amtrak.

WSDOT has received federal funds to procure new locomotives and trainsets or train cars. The FRA, in cooperation with states and other partners are developing standards for "next generation" high-speed passenger train equipment. To be eligible for federal funds, future acquisition of equipment for Amtrak Cascades must fulfill demonstrated operational needs and be consistent with federal standards.

Working Towards Faster, More Frequent Service

WSDOT is investing nearly $800 million in federal funds to deliver critical rail infrastructure improvements that will position the Amtrak Cascades for further growth and greater relevance as a mobility option. Once completed in 2017, the investment will produce the following outcomes:

- Two additional round trips between Seattle and Portland; for a total of six daily round trips (not including Amtrak's Coast Starlight).
- Improved on-time performance/schedule reliability.
- Shorter travel times between Portland and Seattle by 10 minutes.

Types of Improvements:

- Additional track capacity at multiple locations, such as the Point Defiance Bypass, which separates passenger traffic from the majority of freight traffic southeast of Tacoma.
- Upgrades to signal systems.
- Corridor reliability improvements, which include work to help stabilize slopes and reduce the frequency and extent of service interruptions caused by landslides along the Pacific Northwest's only north-south passenger rail corridor.
- Safety-related improvements.
- Station upgrades.
- Eight new locomotives, one new trainset.
- Multiple upgrades to existing track throughout the corridor.

Additional planning is needed to identify the next set of upgrades beyond those currently funded and set for completion in 2017. An initial look at ridership potential is provided in Technical Note 4b: *Passenger Rail Ridership Forecasts*, and more detailed planning will be conducted in the Service Development Plan.

WSDOT is investing nearly $800 million in federal grant funds to deliver critical rail infrastructure improvements that will position the Amtrak Cascades for further growth and greater use as a mobility option.

Challenges and Other Issues

Increase Ridership

Annual ridership on Amtrak Cascades has grown from just under 200,000 in 1994 to more than 836,000 in 2012. What factors have contributed to that success, and what will it take to increase ridership in the future? A market analysis completed by WSDOT in Spring 2013 emphasizes the importance of the basics: improve on-time performance, reduce travel time and add round trips. Improving other aspects of the customer experience can also be beneficial—for example, improving interconnectivity with

complementary transportation modes and pursuing business partnerships to improve service and attract new riders.

Long-Term Goals – High Speed Rail

Current operations are at 79 miles per hour (mph), with efforts underway to increase the maximum operating speed to 90 mph for limited portions of the route. This 11 mph increase in maximum speed can be accomplished once the current infrastructure investment program and installation of Positive Train Control (PTC) has been completed along the PNWRC.

Stakeholder feedback provided throughout the planning process revealed broad support for maintaining the long-range vision for Amtrak Cascades service to better serve customers and increase ridership:

- Thirteen round trips between Seattle and Portland (1-hour frequency during peak travel times) with a travel time of two hours and 30 minutes (2:30).
- Four round trips between Seattle and Vancouver, B.C. with a travel time of two hours and 37 minutes (2:37).

These service goals would require a maximum operating speed of up to 110 mph for most of the corridor. This long range vision would establish Amtrak Cascades as Regional High Speed Rail if fully implemented. There is support for continuing the incremental approach to improving Amtrak Cascades that has served the program well in the last two decades.

Passenger Rail Service Types

HSR[45] – Express. Frequent, express service between major population centers 200 to 600 miles apart, with few intermediate stops. Top speeds of at least 150 mph on completely grade-separated, dedicated rights of way (with the possible exception of some shared track in terminal areas). Intended to relieve air and highway capacity constraints.

HSR – Regional. Relatively frequent service between major and moderate population centers 100 to 500 miles apart, with some intermediate stops. Top speeds of 110 to 150 mph, grade-separated, with some dedicated and some shared track (using positive train control technology). Intended to relieve highway and, to some extent, air capacity constraints.

Emerging HSR. Developing corridors of 100 to 500 miles, with strong potential for future HSR Regional and/or Express service. Top speeds of up to 90 to 110 mph on primarily shared track (eventually using positive train control technology), with advanced grade crossing protection or separation. Intended to develop the passenger rail market, and provide some relief to other modes.

[45] High Speed Rail.

Conventional Rail. Traditional intercity passenger rail services of more than 100 miles with as little as one to as many as 7 to 12 daily frequencies; may or may not have strong potential for future high-speed rail service. Top speeds of up to 79 mph to as high as 90 mph generally on shared track. Intended to provide travel options and to develop the passenger rail market for further development in the future.

* Corridor lengths are approximate; slightly shorter or longer intercity services may still help meet strategic goals in a cost-effective manner.

Source: Vision for High-Speed Rail in America, www.fra.dot.gov/eLib/Details/L02833.

There are limitations and challenges associated with passenger rail and freight rail sharing the same corridor. Historically, and for the foreseeable future, Amtrak Cascades shares track with BNSF freight operations for the vast majority of the route through Washington and British Columbia. The state has pursued a strategy of incremental increases in service to achieve higher speeds, additional frequency, and implement efforts to improve reliability. BNSF and UP have indicated that there are practical limitations to maximum operating speed and the additional capacity required to accommodate passenger trains on the same route as slower freight train operations.

Landslides and Corridor Reliability

Amtrak Cascades operates more than 4,000 trains each year. The service is popular in the northern segment between Seattle and Vancouver B.C., carrying 234,000 passengers in 2012.[46] This rail corridor is also shared with Empire Builder and Sounder trains.

During long periods of heavy rain, rail line owner, BNSF, temporarily suspends passenger rail service to ensure safety when a landslide occurs or a high-level threat of landslide exists. Alternate passenger transportation is provided when rail service is suspended by landslides.

Between November 2012 and early January 2013, landslides cancelled a record number of daily trips. WSDOT is working with government and private rail partners to review recent slope studies and historical slide data, with a goal of determining all factors contributing to landslides. These partners include BNSF, Sound Transit, Amtrak, the National Oceanic Atmospheric Administration (NOAA), Snohomish County, city of Everett, city of Mukilteo, city of Shoreline, Governor's Office of Regulatory Assistance, town of Woodway, Seattle Public Utilities, Washington State Department of Ecology, Washington State Department of Natural Resources, and city of Edmonds.

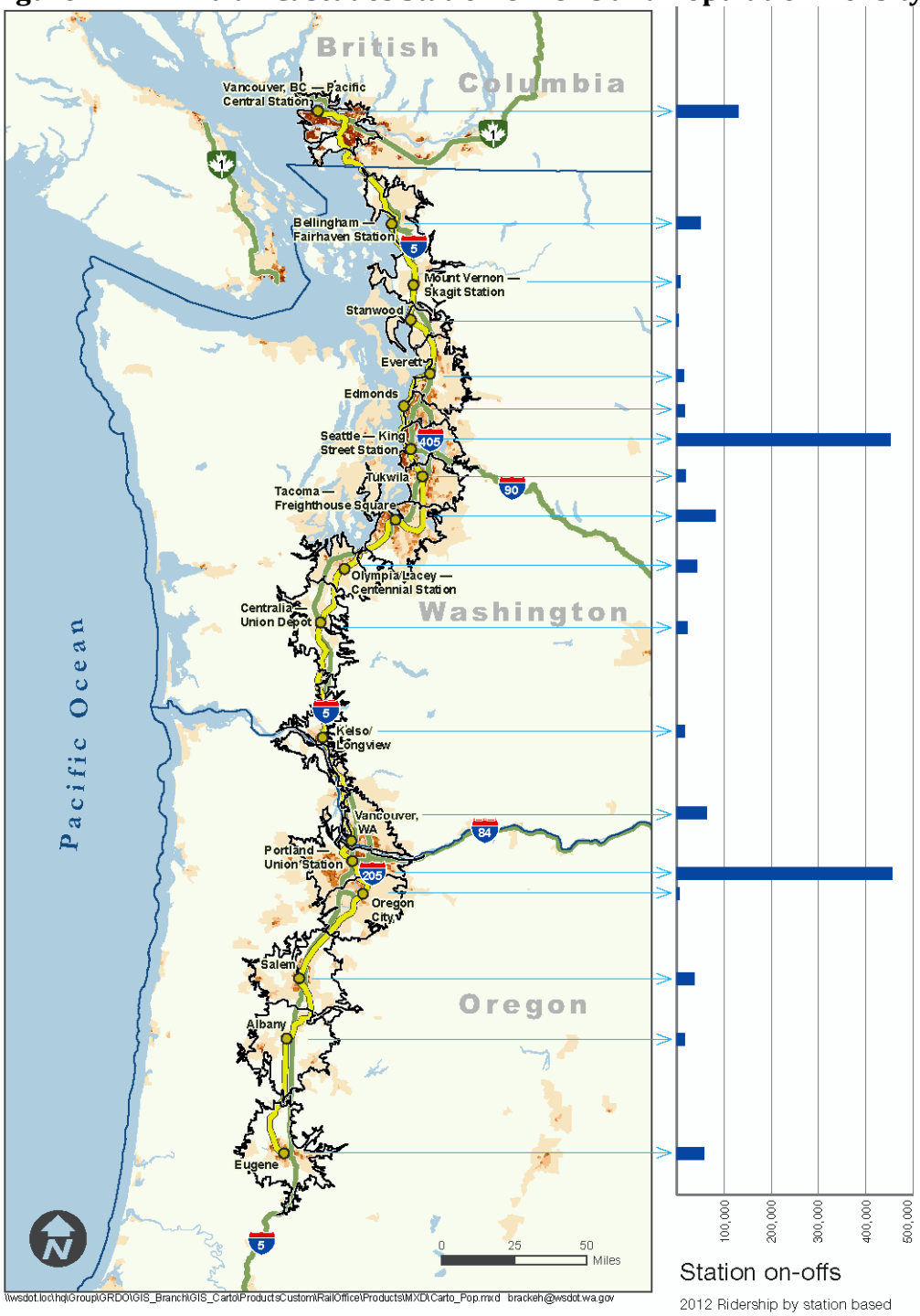
[46] www.wsdot.wa.gov/Projects/Rail/slidemanagement

Construction on a $16.1 million federally funded project began in August 2013. The project, which helps stabilize slopes above the rail line near Everett, represents the first step in an ongoing effort to address landslides and keep passenger rail service moving. Other approaches include developing educational materials for property owners and considering revisions to city and county ordinances.

Serving the Right Stations

Determining station stops involves a delicate balancing act. There is a need to provide travelers with sufficient access to the service, while at the same time maintaining a total travel time that is attractive to customers. The average stop adds approximately five minutes to the schedule. Two stations have been added in Washington since the Amtrak Cascades service began; there are now a total of 12 station stops in Washington. Other communities have expressed interest in being added. In 2012, the Washington Legislature directed WSDOT to study the potential benefits of adding a stop in Auburn. A key finding from that study indicates that potential ridership gains from adding stations can be outweighed by travel time impacts, which result in incremental losses to larger markets traveling through the station. The goals for Amtrak Cascades involve improving service, and changes consistent with those goals should be pursued. For further details, see the *New Stop Evaluation – Auburn* study for Amtrak Cascades, which is included by reference to the State Rail Plan. An interim policy is presented as recommendation A3.2 in Chapter 5.

Figure 4.11 Amtrak Cascades Station On-Offs and Population Density



[1] Population density derived from 2010 US Census and 2011 Statistics Canada

[2] Rail station drive times were calculated using ESRI StreetMap North America 2012 data with standard impedances.

4.2.c Regional/Commuter Rail – Sounder

Commuter rail systems typically offer passenger service within a single region, and occasionally between regions. In Washington, commuter service is provided by the Central Puget Sound Regional Transit Authority (Sound Transit) with its Sounder train service. Sounder operates on an 82-mile route between Everett in the north and Lakewood[47] in the south, providing morning and evening rush hour service during the week, with occasional weekend service for special events.

Sounder is divided into two routes—a North Line between Everett and Seattle and a South Line between Lakewood and Seattle. The South Line calls at nine stations: Lakewood, South Tacoma, Tacoma, Puyallup, Sumner, Auburn, Kent, Tukwila, Seattle (south to north). The North Line calls at four stations: Everett, Mukilteo, Edmonds, and Seattle (north to south).

Sound Transit is a regional transit and taxing authority established to provide transit service, and includes regional bus, light rail and commuter train. Currently, Sound Transit is funded by local taxes including a motor vehicle excise tax, a sales, use tax and a rental car tax, along with farebox revenues, grants and interest earnings. The Sound Transit taxing district generally follows the urban growth boundaries created by each of the member counties, King, Pierce and Snohomish. Voters within the district boundary vote to approve up to nine-tenths of one percent sales tax and an employer tax of $2 per employee per month.[48]

Sound Transit manages the service and owns the passenger cars and locomotives, and contracts with BNSF for operating crews and Amtrak for maintaining the equipment. Infrastructure access was gained by Sound Transit through the acquisition of operating easements between Everett and Tacoma over BNSF's track along the I-5 corridor. The line between Tacoma and Lakewood was acquired by Sound Transit from BNSF, and thus is under the full control of Sound Transit.

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47 Service to Lakewood began in 2012.

48 Source: Sound Transit, Long Range Plan. All taxes collected by Sound Transit are subject to a public vote. Voters within the district supported a sales tax increase to 0.9 percent in 2008. Sound Transit may also levy and employee head tax of $2 per employee per month with voter approval.

State Role and Interest – Congestion Relief in the Puget Sound

Sounder provides high-capacity public transportation that increases travel options and relieves congestion. The service helps fulfill state objectives for reducing vehicle miles traveled and greenhouse gas emissions. WSDOT coordinates train schedules with Sound Transit for mutual benefit of Amtrak Cascades and Sound Transit's commuter services in the Puget Sound Region. The state has contributed funds to Sounder projects that also provide benefits for other rail users. Sound Transit has invested in excess of $700 million in track and signal improvements between Everett and Lakewood, providing much needed capacity, safety and speed improvements to the corridor. The benefits of these improvements are shared by freight rail and intercity passenger rail including WSDOT sponsored service.

Existing and Future Conditions

Sounder is Safe and Reliable

On-time performance (OTP) through September 2012 was 95.9 percent, with 98.9 percent of scheduled trips operated. Through the third quarter of 2012, Sounder also has experienced a significant reduction in complaints per 100,000 boardings relative to last year. Furthermore, Sounder has also reported zero preventable accidents from 2010 to present day.

Sound Transit integrates its services, and works with other transit agencies to optimize connections within the Puget Sound region. Sound Transit's multimodal stations serve a park and ride function in residential areas. Sound Transit is looking at ways to improve access by all modes to stations through its station access policy and parking pilot program.

Ridership: Existing and Future

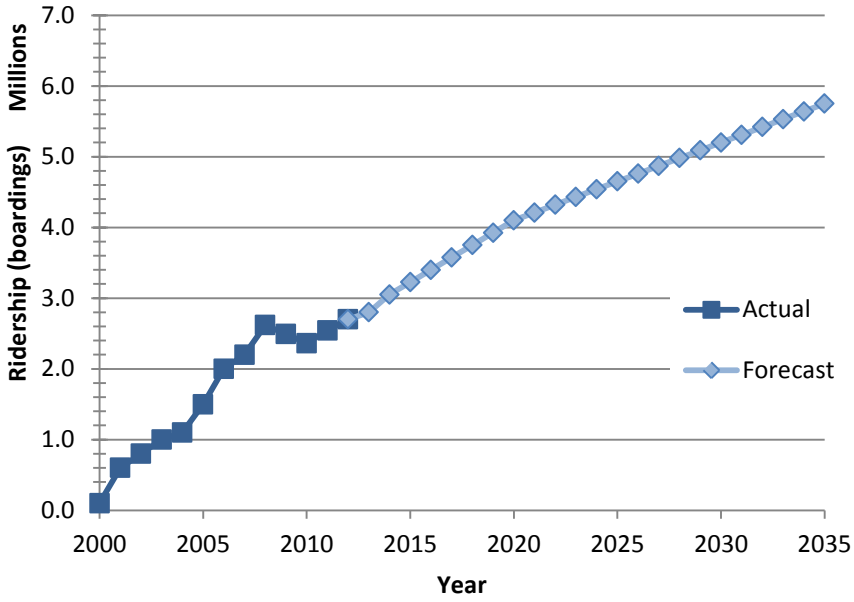
Like all passenger services, commuter rail ridership is driven by a number of factors, including demographic and economic factors, the type of rail service offered, the presence of competing transportation options (such as bus or highways), travel time and travel costs.

Ridership on Sounder (Figure 4.12) has grown steadily from about 100,000 riders per year (North and South route combined) in 2000 to just over 2.5 million riders per year (North and South route combined) in 2008. Following a decline in ridership from 2008 to 2010, Sounder ridership rebounded in 2011 and 2012, with combined North and South route ridership of approximately 2.8 million passengers for 2012. According to Sound Transit, a slowly recovering economy and higher gasoline prices appear to be the main factors contributing to an increase in ridership.[49]

[49] Sound Transit, Quarterly Performance Report, Second Quarter 2012.

By 2035, it is estimated that Sounder will serve nearly 5.8 million annual riders. The majority of these passengers are anticipated to use the South Line, accounting for approximately 5.1 million riders (about 88 percent of the total).

Figure 4.12 Sounder Ridership, 2000 to 2035



Source: Sound Transit with Cambridge Systematics projections for 2031 through 2035.
Note: Forecast values provided by Sound Transit for 2012 through 2030 are rounded to the nearest 100,000. Linear growth rate used to calculate ridership levels through 2035.

Challenges and Other Issues

Strengths of Sounder – Building on Success

Sounder has the highest reliability (on-time performance) of Washington's passenger train services. Sounder complements and enhances Washington's passenger transportation network. Sound Transit is implementing the Sound Transit 2 (ST2) ballot measure, which received voter approval in 2008. Expansions and improvements to Sounder are included in ST2.

With the strength of high reliability, cancellations due to landslides are a challenge on the northern route. Efforts to improve (reduce) the number of cancellations between Seattle and Everett are underway. Additional information on this issue can be found in Section 4.2.b Intercity Passenger Rail – Amtrak Cascades.

4.3 Integrated Rail System

As described in Chapter 2, the elements of the rail system work together. The following section addresses issues that are common to and affect the entire rail system.

4.3.a Multimodal Connectivity for Freight Rail

Connections from rail to other modes are important for freight rail. Reliable and efficient access to the rail system throughout the state increases attractiveness of Washington ports and helps make Washington goods more competitive in the global market. Given the potentially severe consequences of degraded rail service, the importance of a functioning rail system is underscored in this State Rail Plan.

State Role and Interest – Efficient Movement of Goods

In light of anticipating growth in international trade, the state's rail system must provide high-quality, efficient and reliable connectivity to the state's ports, terminals, and yards. Freight rail provides vital linkages to the economy by linking shippers to ports for export, and by allowing goods to reach consumers.

Stakeholder Feedback: Limited connections to intermodal terminals in the Puget Sound region are an essential resource.

A special kind of multimodal transportation, intermodal terminals provide key links in supply chains that use Washington's ports. They serve as the primary means of providing access to the U.S. interior, and their efficiency affects the overall competitiveness of the region's ports, for which the volume is expected to grow at a rate of five percent annually from 2010 to 2035.[50]

In addition, "last mile connectivity" means the ability to connect cargo from the national freight system (Class I rail, highway, or air cargo) to its final destination at a customer loading dock, manufacturing facility, or other industrial site. Industrial site rail access is thus another important aspect to consider when dealing with connectivity.

Many recent or planned projects address intermodal terminal access. For example, the Port of Seattle and its partners completed the East Marginal Way Grade Separation in 2012, a project that improves road and rail access to Port terminals, BNSF and UP intermodal rail yards, and regional manufacturing/distribution facilities.[51] Similarly, the SR 509/East D Street Slip Ramp project will construct a new interchange to help link the

[50] Source: Analysis of STB Waybill Data by Cambridge Systematics, included as appendices to this State Rail Plan, in particular Technical Note 3a: *Freight Rail Demand, Commodity Flows, and Volumes;* and Technical Note 4a: *Freight Forecasts and Capacity Analysis.*

[51] www.portseattle.org/Supporting-Our-Community/Regional-Transportation/Pages/East-Marginal-Way-Grade-Separation.aspx.

Tideflats area and the BNSF intermodal yard, as well as increase area safety and mobility near the Port of Tacoma.[52]

Challenges: Preservation of Rail-Served Industrial Sites

Stakeholders report several instances of lost opportunities following the closure of a rail-served industry.

State law requires Seattle and Tacoma to include a *Container Ports Element* in their respective comprehensive plans to address transportation and land use near rail and other port infrastructure. Clark County designated *industrial railroad base zones* near some rail lines. The designation is appropriate for land uses that require and take advantage of rail access for industrial and manufacturing purposes such as manufacturing, assembly, fabrication, processing, and bulk handling and storage (warehousing).

Opportunities for Multimodal Planning for Freight

Land Use Plans

Regional Transportation Plans

Corridor Plans

State Freight Mobility Plan

Highway System Plan

Washington Transportation Plan

[52] www.cityoftacoma.org/Page.aspx?nid=1103.

4.3.b Multimodal Connectivity for Passenger Rail

Connections from rail to other modes are important for passenger rail. Reliable and efficient access to the rail system throughout the state enhances the convenience and attractiveness of passenger rail services to the traveling public.

Multimodal Planning:

Land Use Planning

Regional Transportation Planning

Corridor Planning

Highway System Plan

Washington Transportation Plan

State Role and Interest – Passenger Train Stations Are Transportation Hubs

Access to passenger rail train stations by car, bike, transit or walking is called multimodal connectivity. Passenger rail becomes more attractive and easier to use as access to and from train stations becomes more multimodal, frequent and efficient. A primary component of connectivity that must be considered is "first and last mile" connectivity: the idea that a passenger is able to conveniently and efficiently access the rail station and system to begin their journey and/or conveniently and efficiently reach their final destination through transit connections, walking, biking or a personal vehicle.

Multimodal Hub Example: Everett Station

Everett Station is an example of an intermodal hub. This facility, owned and managed by city of Everett, serves as a transportation hub as well as a higher education and career development center.

Transportation services include:

- Rail: Amtrak Empire Builder, Amtrak Cascades, Sounder.
- Intercity bus: Greyhound, Northwest Trailways.
- Public transportation: Skagit Transit, Island Transit, including the "Tri-County Connector" serving Skagit, Whatcom and Island Counties; Sound Transit, Community Transit and Everett Transit.
- Bike lockers and racks, rental car telephone, parking

Everett Station also houses WorkSource and WorkForce programs, retail, community room rental and public art.

Measures used to evaluate connectivity include roadway access, ease of parking, number of parking spaces at stations, direct connection to other transit, and integrated ticketing with other transit services. Washington's rail services offer the following connections to support "last mile" connectivity":

- Amtrak Empire Builder stops at 11 stations in Washington. Nine of these have dedicated parking spaces and eight have connections to transit service. Transit connections include intercity and Greyhound bus, taxi, light rail, and Washington State Ferries.
- Amtrak Coast Starlight stops at six stations within Washington. Five of these have dedicated parking facilities and all six have connections to transit service. Transit connections include intercity and Greyhound bus, Washington State Ferries.
- Amtrak Cascades stops at 12 stations within Washington. Eleven stops have dedicated parking and all 12 have connections to transit service. Transit connections include intercity and Greyhound bus, taxi, and Washington State Ferries.
- The Sounder service stops at 12 stations in Washington. Eleven have dedicated parking facilities and all 12 have transit connections to intercity and Greyhound buses, as well as Amtrak rail service.

Because many of the rail stations serve multiple services, there are opportunities for Amtrak, WSDOT and Sound Transit to partner on elements such as co-located parking.

Challenges and Other Issues

Schedule Coordination between Services

The passenger rail services coordinate their schedules to make passenger operations as smooth as possible. This includes train schedules of long-distance routes, Amtrak Cascades and Sounder, as well as bus extensions

of train routes to improve connections outside stations. Bus routes are one way to build passenger ridership on corridors.

Shared Passes

The RailPlus program allows Sound Transit passengers to use Amtrak Cascades trains at Seattle's King Street Station, Edmonds and Everett by purchasing an Amtrak RailPlus ticket. Tickets can be purchased with an ORCA card, ORCA Passport card, or at the regular Amtrak ticket rate. This opportunity strengthens both services.

Amtrak Cascades added more bicycle racks due to their popularity.

4.3.c Safety and Security

Though rail is already considered a safe, efficient mode of transportation, continued work is needed to maintain and improve this status. Therefore, WSDOT and its partners should remain focused on providing and operating safe rail infrastructure. If and when passenger rail ridership increases, there may be increased strain on existing safety features of the systems. As planning and development of facilities is undertaken, detailed attention should be given to maintaining and enhancing rail safety.

State Role and Interest – Safety is for Everyone

Given the potentially severe outcomes of rail incidents when they do occur, rail safety is a serious consideration for state and federal agencies. Rail safety and security is regulated through several different federal and state agencies, including the FRA, the Washington Utilities and Transportation Commission (UTC), and the Department of Homeland Security (DHS). WSDOT serves primarily as a public educator as well as point of contact in the event of an incident, complaint or other safety concern.

Table 4.1 provides a summary of 2011 and 2012 rail incidents/accidents in Washington as compared to national information for the same period. As shown, the total incident frequency in Washington comprises 2 percent of the total number of incidents nationally

Table 4.1 Washington Rail Incidents/Accidents Compared to U.S. Totals, 2011 and 2012

Accident / Incident Type[a]	2011		2012		Washington as % of U.S. Totals	
	WA	U.S.	WA	U.S.	2011	2012
Train accidents (Excluding highway-rail incidents)	40	2,020	32	1,734	2%	2%
Highway-rail[b]						
Incidents	32	2,060	31	1,967	2%	2%
Fatalities	8	251	2	233	3%	1%
Injuries	10	1,038	18	936	1%	2%
Other incidents[c]	138	7,372	133	7,179	2%	2%
Total accidents/incidents	210	11,452	196	10,880	2%	2%

Source: FRA Office of Safety Analysis, retrieved from website on September 23, 2013.
[a] Excludes trespassing incidents.
[b] Incidents, Fatalities, Injuries listed below are highway-rail incidents only.

[c] Other incidents include events, other than train accidents or crossing incidents, that caused a death or nonfatal condition to any person. This can include stumbling, tripping, or getting on and off equipment.

Table 4.2 Federal and State Agencies Involved in Regulating Freight and Passenger Rail Safety and Security

Agency	Scope of Activity	Authorities/Responsibilities
Federal Railroad Administration (FRA)	Train/Track Safety	• Develops and enforces basic operating rules for train safety, tank car safety, railroad industrial hygiene, rail equipment safety, and grade crossing safety and trespass prevention. • Oversees employee hours of service regulations and signal and train control regulations. • Inspects and audits track. • Tracks rail movement of spent nuclear fuel and radioactive waste. • Manages the Rail Safety Improvement Act of 2008 (RSIA).
Department of Homeland Security (DHS)	Rail Security	• Establishes requirements for national rail security strategy and risk assessment. • Tracks hazardous materials (hazmat) shipments. • Creates railroad requirements for developing institutional risk assessments. • Conducts programs for rail security training. • Conducts rail security research and development (R&D).
Utilities and Transportation Commission (UTC)	Rail Safety	• Oversees rail operations and conducts physical inspections in coordination with FRA. • Inspects railroad crossings and investigate complaints or accidents. • Resolves complaints (Quiet Zones and trespassing complaints, for example). • Ensures employee safety through employee regulations. • Funds rail safety projects through the Grade Crossing Protective Fund. • Promotes public awareness as a partner in the Operation Lifesaver Program.
Washington State Department of Transportation (WSDOT)	Rail Safety	• Publishes general rail safety principles and "rules to remember." • Funds grade crossing protection improvements from federal highway dedication (Section 130). • Distributes information online for public education, including the contact information for the Washington UTC, the BNSF and UP railroads, and the Surface Transportation Board. • Promotes public awareness through participation in the Operation Lifesaver Program

Source: Cambridge Systematics, 2013.

Trespassing is a Growing Concern Nationwide

Accidental or purposeful trespassing occurs regularly on active rail lines. The UTC publishes rail trespass fatalities in Washington state each year. Ten fatalities occurred in 2012, 22 fatalities occurred in 2011, 15 in 2010, and 12 fatalities in 2009.[53] Though not all of these incidents occurred near passenger rail stations, they did occur in places where pedestrians were easily able to walk on or near rail infrastructure. According to 2012 national trespassing statistics, there were 11 trespassing fatalities in Washington compared to 434 national trespassing fatalities (2.5 percent).[54] While this is a relatively low percentage, there remains opportunity to improve conditions. Trespassing can be reduced through adopting prevention strategies, such as enhancing existing barriers or building new physical barriers, and better indication of escape routes. WSDOT publishes some "Rules to Remember,"[55] targeted at reducing the incidence of trespassing, and reminding the public that trespassing is a dangerous, illegal activity.

At-Grade Rail Crossing Safety Concerns

At-grade rail crossing concerns tend to focus on the potential for train/roadway vehicle conflicts, the potential for disrupted emergency vehicle response time, congestion caused during "gate down time," and air quality concerns from vehicles idling at grade crossings. For these reasons, at-grade crossing safety is a priority concern for the community, UTC, FRA, WSDOT and to the railroads themselves. The dual pressures of growing populations (and thus growing requirements for land), coupled with increasing rail traffic, are bringing at-grade crossing concerns to the forefront of the statewide rail planning process in many states.

Like many aspects of rail security and safety, WSDOT's role in providing rail at-grade crossing safety is fairly limited on the rail side. Safety at state-owned at-grade crossings are prioritized with other intersection safety projects. WSDOT focuses its efforts on public education, through the Operation Lifesaver program, public service announcements and web-based information related to rail safety principles and "rules to remember." WSDOT also funds a limited number of grade crossing protection improvements through the Federal Highway Administration's (FHWA) Section 130 program. Actual tracking of rail at-grade crossing accident data, and linking improvements to data, is the responsibility of the UTC and FRA.

The UTC and FRA track aggregate incident/accident data across the nation. There were 1,967 highway-rail incidents nationally in 2012, of

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53 www.utc.wa.gov/publicSafety.
54 http://safetydata.fra.dot.gov/officeofsafety/default.aspx.
55 www.wsdot.wa.gov/Rail/TrainSafety

which 31 (2 percent) were in Washington. The UTC tracks these accidents, and also keeps a rail grade crossing database comprised of all the rail grade crossings in the state. Additionally, the UTC offers Grade Crossing Protective Fund Grants, a competitive process where railroads, local governments, and other agencies can apply for assistance to make safety improvements at a railroad crossing or along a railroad right of way. The selection process includes the severity of the hazard, the safety benefits resulting from the project, the total costs to implement a project, geographic diversity, and funds available for the program.[56]

[56] www.utc.wa.gov/publicSafety/railSafety/Pages/gradeCrossingProtectionFundGrants.aspx

Chapter 5. Rail System Needs and Recommendations

Overall, Washington's rail system provides a safe and efficient transportation option to support the movement of people and goods throughout the state. However, there are challenges that must be addressed for the system to continue to function well as demand for rail transportation grows in the future. Though many of those challenges will be the responsibility of the private-sector rail stakeholders who own or operate over rail infrastructure, the state also has an interest in ensuring that there is a viable system to support movement of people and goods.

The following pages articulate some of the high-priority needs facing today's rail system, as well as recommended actions for the state to take. These needs and recommendations draw from the analysis of rail system strengths and challenges completed during this State Rail Plan process, as well as extensive public input solicited throughout the effort. The approach to developing can be found in Section 1.4 Approach.

Needs and recommendations of the State Rail Plan are organized into three categories:

A. *Rail Infrastructure and Service:* includes needs relating to the main goals of the state's passenger and freight rail system, including the approach to maintaining its capacity and efficiency. These needs and recommendations address ***what*** the high-priority elements of the system include.

B. *Rail's Role in Economic Development:* includes needs and opportunities relating to rail's role in providing mobility and economic development to Washington's industries and citizens. These needs and recommendations address ***why*** the state has an interest in the rail system.

C. *Rail System Priorities and Goals:* includes the fiscal, environmental and safety performance goals of the state's rail system as outlined in the vision statement. These needs and recommendations address ***how*** the system should function.

A reference list is provided in Table 5.1.

Table 5.1 Needs and Recommendations Summary Table

Group	Needs	Recommendations
Rail Infrastructure and Service (Group A)	Address capacity constraints in order to meet future passenger and freight rail demands	The state's involvement in the rail system should be focused on actions that improve the state's interests, including a thriving and diverse economy, environmental efficiency, resiliency and safety.
		The state should take an active leadership role to build on existing multistate coalitions to address rail system and corridor needs across the Pacific Northwest.
		WSDOT should continue to pursue the incremental implementation of passenger rail service.
		Statewide rail stakeholders should work through regional and state transportation planning on a regular basis to ensure that their needs and opportunities are understood, and are used to inform any state rail investments or planning efforts.
		WSDOT should improve recognition of rail-related needs in its highway engineering activities.
	Preserve existing rail capacity and infrastructure.	Work with short line railroads and short line rail stakeholders to assess short-line rail needs, and create a statewide short-line rail needs inventory.
		WSDOT should consider the stewardship and upkeep history of any potential rail improvement project.
		WSDOT should seek to address rail needs in the most cost-effective manner possible.
		WSDOT should consider strategic state interest when examining the impacts of the loss of rail infrastructure.
	Enhance the efficiency and reliability of existing rail services.	WSDOT should periodically re-evaluate its passenger system plans and adjust them as necessary to achieve operational improvements in pursuit of transportation system goals.
		WSDOT should adopt a formal policy on adding or consolidating stops on Amtrak Cascades.
		The state should ensure that passenger and freight rail metrics are in place that can appropriately evaluate the performance of mobility, efficiency, safety, reliability and environmental compatibility of proposed new projects.
Rail's Role in Economic Development (Group B)	Support economic development by providing access to people and industry.	The state should support efforts to identify those intermodal and multimodal connectors that provide "first and last mile" connectivity to businesses and locations that generate freight and passenger demand. This designation should be included in the project prioritization process.
	Preserve access to global markets by ensuring access to Washington's ports.	The Washington State Freight Mobility Plan should include projects that enhance or support connectivity to Washington's deep water, river and inland ports.

Group	Needs	Recommendations
Rail System Priorities and Goals (Group C)	Employ cost-effective strategies when investing public funds in the state's rail system.	WSDOT should use performance metrics to evaluate its passenger and freight rail programs, and ensure that the program funding is aligned with demonstrated need.
		The state should seek innovative funding and financing sources to leverage public funds and provide more value with limited resources.
		WSDOT will focus on the specific requirements of Amtrak Cascades service to minimize public costs and operate the system in the most efficient manner possible.
	Strengthen rail to maximize the positive benefits, while minimizing the potential negative impacts to communities and the environment.	The state should facilitate discussions about community concerns or questions about rail benefits and impacts, and help coordinate with communities, the railroads and other rail stakeholders.
		Railroads and public agencies should continue to use WSDOT reports, studies and other materials to clearly communicate the benefits of the rail system to Washington residents.
	Continue to support passenger and freight rail safety and security.	The state should continue to support rail safety and security.
		WSDOT should continue to coordinate pedestrian access in and around Amtrak Cascades stations in order to meet safety performance goals.

5.1 Rail Infrastructure and Service (Group A)

Need A1: Address capacity constraints in order to meet future passenger and freight rail demands.

Future year passenger ridership and freight volumes will be dictated by a variety of demand drivers including population and industry growth, increasing per capita income and growing international and domestic trade activity. With many of these drivers anticipated to grow rapidly by 2035, increased demand for freight and passenger rail is expected.

A capacity assessment performed for this State Rail Plan suggests that, unless rail system infrastructure is enhanced, this future growth could overwhelm rail system capacity, due to shortcomings such as passenger/freight conflicts, height limitations on rail tunnels and bridges, inadequate siding lengths or bridge capacity. (Please see Figure 4.3 on page 38, which provides a graphical snapshot of 2035 rail system capacity.) Publicly-sponsored passenger rail faces additional capacity challenges in operations, including inadequate number and frequency of trips and the limitations of fleet equipment.

In order to stay nationally and internationally competitive, Washington state (WA) must ensure, along with its freight and rail stakeholders, that rail service is comparable or better than its rivals. Since people have other options for personal travel for shipping goods, a well-functioning rail system will protect and grow the use of rail compared to other travel modes. For example, maintaining and improving our reliable rail service could increase the attractiveness of Washington ports for discretionary cargo, and could contribute to increased competitiveness for Washington state ports. Additionally, the increased movement of manufactured and retail products by rail helps to minimize congestion on the state's highways, providing additional positive benefits to the state's economy. Taxpayers could benefit from the decreased wear and tear on Washington's roadways and efficiencies in rail service could lead to lower prices and increased industrial business opportunities.

Recommendation #A1.1: The state's involvement in the rail system should be focused on actions that improve the state's interests, including a thriving and diverse economy, environmental efficiency, resiliency and safety.

The state's approach to the rail system should be guided by the state's interests and roles, as embodied in documents such as the state Transportation System Policy Goals (RCW 47.04.280). When investments or planning activities are considered, they should be evaluated against their impact on the state's interests, using clearly defined performance metrics. (Please see Recommendation A3.3.) The state should seek to create and update a list of priority projects and needs based on these performance metrics. State entities, including the Washington State

Approaches to Capacity Needs – Examples:

Capital Projects: Add and lengthen sidings, such as the underway Kelso Martin's Bluff – New Siding project.

Capital Projects: Improve track segments to allow for more efficient movement of trains, such as the underway King Street Station Track Improvements project.

Operational Strategies: Implement one-way routing to optimize throughput – such as the directional running over Stampede Pass implemented in 2012.

Policy/Program Changes: Develop strategic plans to identify capital improvement needs and support grant applications. The *Washington State Amtrak Cascades Mid-Range Plan* is an example of a plan that identified necessary infrastructure and project needs.

Department of Transportation (WSDOT), the Freight Mobility Strategic Investment Board (FMSIB), Department of Commerce and the Washington Utilities and Transportation Commission (UTC), should coordinate to ensure that the project list reflects high-priority rail system needs.

Recommendation #A1.2: The state should take an active leadership role to build on existing multistate coalitions to address rail system and corridor needs across the Pacific Northwest.
Washington should continue to develop strong ties to Oregon (OR), British Columbia (B.C.), Idaho and California, through existing agreements and new planning initiatives. Key issues motivating these ties include cross border rail crossings and corridor-level improvement opportunities. This includes strengthening WSDOT's involvement in existing agreements with Oregon Department of Transportation (ODOT) to manage Amtrak Cascades service, as well as strengthening ties to planning initiatives with the B.C./WA Joint Transportation Executive Council and Working Group. Other examples include corridor planning groups such as the Great Northern Corridor Coalition, the Inland Pacific Hub project, Pacific Northwest Gateway Coalition and International Mobility and Trade Corridor project (IMTC). Also included is the need for Washington, Oregon and British Columbia to work collaboratively on cross-jurisdictional planning efforts such as corridor improvement and capital project funding, consistent with direction from the Pacific Coast Collaborative.

Recommendation #A1.3: WSDOT should continue to pursue the incremental implementation of passenger rail service.
The 2030 Washington Transportation Plan sets a goal for rail service, "Connect regional economies by improving north-south and east-west round trip passenger train service between major metropolitan areas." This rail plan confirms the long-term vision for intercity passenger rail based on strategic planning and set in earlier plans (*Long-Range Plan for Amtrak Cascades*, 2006; and *Amtrak Cascades Mid-Range Plan*, 2008):

- Portland, OR to Seattle, WA: 13 daily round-trip trains; 2 hours, 30 minutes total travel time.
- Seattle, WA to Vancouver, B.C.: four daily round-trip trains; 2 hours, 37 minutes total travel time.
- Vancouver, B.C. to Portland, OR: 5 hours, 22 minutes total travel time.

The planning horizon for the Amtrak Cascades vision identified in the long-range plan is extended to 2035. A more detailed implementation strategy, including identification of specific infrastructure needs attached

to the next package of service improvements, will be determined in the state's Service Development Plan.

The state has and will continue to use an incremental approach to achieving this long-term vision for Amtrak Cascades, focusing on enhancements and expansion efforts that provide immediate benefits for the public.

Major capacity enhancements (such as consideration of dedicated track for passenger rail, or an Amtrak Cascades-style east-west passenger rail service) could be advanced gradually and as dictated by need. WSDOT should continue to develop intercity passenger rail forecasting tools to predict passenger rail demand based on demographic, economic and social factors.

Recommendation #A1.4: Statewide rail stakeholders should work through regional and state transportation planning on a regular basis to ensure that their needs and opportunities are understood, and are used to inform any state rail investments or planning efforts.

Already, there are many opportunities for rail stakeholders to actively participate in rail planning activities, especially through the metropolitan and regional transportation planning processes. Ongoing rail stakeholder participation in these programs is essential to ensure that rail is an integrated part of multimodal transportation planning. In addition, these forums allow stakeholders to highlight rail capacity needs, help clarify the benefits of rail improvements for the multimodal transportation system, serve as mechanisms to identify projects for potential public funding, and serve to further an integrated and holistic approach to public investment. WSDOT should support rail stakeholders and metropolitan and regional transportation planning organizations to facilitate discussion and enhance communication.

Recommendation #A1.5: WSDOT should improve recognition of rail-related needs in its highway engineering activities.

As part of its multimodal planning and context sensitive design approach, WSDOT should take into consideration existing and future rail system needs when highway projects are being designed. Examples include providing adequate overpass clearances and considering the potential need for a second track along a line that is currently single track. Railroads, rail operators and other stakeholders should support these efforts by providing information for and participating in corridor planning and project scoping.

Need A2: Preserve existing rail capacity and infrastructure.

Procuring new rail right of way and building new rail infrastructure is expensive, time consuming, and may involve complicated land use or political decisions. Therefore, emphasis should be placed on preservation,

Approaches to Preservation Needs – Examples:

Capital Projects: King Street Station seismic retrofit and renovation.

Capital Projects: Renovation of trainsets to ensure ongoing safety / operations.

Capital Projects: Replace worn rail/ties based on regular schedule.

Operational Strategies: Perform regular maintenance to support the longevity and reliability of infrastructure and equipment.

maintenance and optimization of existing rail system infrastructure as well as preservation of critical industrial lands served by rail. Examples, which highlight the need to preserve rail infrastructure, include:

- Deferral of even modest maintenance spending can lead to equipment and track deterioration that requires substantial investment to repair. Short-line operators named bridge repairs as one of their highest priorities.
- Failure to update track to handle modern rolling stock hurts connectivity by limiting the ability of customers to access newer, heavier cars (more efficient and cost effective cars), which have become an industry standard.
- The 2008 *Container Ports Initiative* declares key freight transportation corridors that serve qualifying marine port facilities to be "transportation facilities and services of statewide significance." Urban development near rail facilities limits the ability to purchase new right of way and modify operations to accommodate increasing volumes.
- Abandonment of a rail line can mean the permanent loss of a valuable transportation asset resulting in economic losses to industries or cities that rely on it and precluding any future rail service.

Recommendation #A2.1: Work with short-line railroads and short-line rail stakeholders to assess short-line rail needs, and create a statewide short-line rail needs inventory.

Benton-Franklin Council of Governments Workshop Feedback: It is cheaper to maintain rail infrastructure now, so don't wait until later.

Assessments about short-line railroad conditions in this plan are mostly based on anecdotal information. Complete, consistent data are needed to provide a quantitative assessment of needs that could be used to justify future requests for additional funding. WSDOT should work with the short-line rail owners and operators to establish a system inventory. As an example, WSDOT should request bridge management plans from short-line railroads**.** Under the Rail Safety Improvement Act of 2008, short-line railroads are now required to provide bridge management plans to the Federal Railroad Administration (FRA). The inventory should use established, consistent performance metrics (please see recommendation A3.2) to evaluate the fitness, safety and efficiency of each short-line system. The focus should be on metrics that are transparent, quantifiable and where data sources are readily available to WSDOT and the short-line railroads. As an example, for its own short-line rail system, WSDOT currently measures the percentage of the system that meets FRA Class 2 track standards, which enables 25 mph operations. WSDOT also measures the percentage of the system approved to handle rail equipment weighing 286,000 pounds gross weight.

Recommendation #A2.2: WSDOT should consider the stewardship and upkeep history of any potential rail improvement project.
WSDOT should consider status of repair before granting funds for rail improvements. The state should only consider becoming involved in rail system improvement or upkeep in limited conditions, where the owner of the system has demonstrated good stewardship of the infrastructure, and there is a demonstrated public benefit. When seeking state funds, railroads should demonstrate their commitment to a strategic maintenance and preservation program. In these situations, the state should seek the most cost-effective approach. In some situations, upkeep and maintenance may be sufficient to improve the safety or efficiency of the rail infrastructure, and can reduce or remove the necessity of capital improvements. WSDOT's project selection criteria should recognize the potential of operations and maintenance projects to alleviate issues, as well as the owner's history of upkeep and stewardship. WSDOT should rely on the needs inventory established in Recommendation A2.1 to determine if a history of stewardship has been demonstrated.

Recommendation #A2.3: WSDOT should seek to address rail needs in the most cost-effective manner possible.
The state should seek the most cost-effective approach when investing funds in rail system improvements. In some situations, operational changes may be sufficient to improve the safety or efficiency of rail infrastructure, and can reduce or remove the necessity of capital improvements. WSDOT's project selection criteria should recognize the potential of operations projects to alleviate problems and improve performance.

Recommendation #A2.4: WSDOT should consider strategic state interest when examining the impacts of the loss of rail infrastructure.
The state plays a role in preserving essential rail service by providing short-line railroads with financial assistance for maintenance, upkeep and improvement of existing infrastructure. Grants and loans are awarded based on public benefits and contributions to economic development. This is a proactive approach to preventing the loss of rail service where there is a state interest. Rail abandonment and rail banking are federal processes designed to address situations where the owner of the track is no longer able or willing to provide service. Rail banking preserves rail right of way for future use, while rail abandonment results in a permanent loss of rail service. If a rail line becomes susceptible to abandonment, the state should consider whether there is a strategic state interest and determine if public benefits or disadvantages warrant the creation of a more formal state policy.

Approaches to Efficiency and Reliability Needs – Examples:

Policy/Program: Enter service outcome agreement with host railroad including payment for specific outcomes, such as improved reliability.

Capital Projects: Upgrade signal systems to allow more efficient operations.

Need A3: Enhance the efficiency and reliability of existing rail services.

Passenger and freight rail transportation should be a viable transportation option that contributes to overall statewide mobility goals, helps to alleviate congestion and roadway wear and tear, and offers cost-effective service to Washington's shippers and industries.[57] In order to do so, it must be a reliable and efficient transportation option. Rail use, in many cases, is discretionary. Passengers who choose rail often have other options, including car, bus, airplane or even not taking the trip. Freight shippers can, in some cases, shift to truck or barge. Predictable performance and reliability is needed to ensure that rail remains a viable part of Washington's balanced multimodal transportation system.

Recommendation #A3.1: WSDOT should periodically re-evaluate its passenger system plans and adjust them as necessary to achieve operational improvements in pursuit of transportation system goals.

The state's intercity passenger rail service is intended to support transportation system performance goals such as: reducing roadway vehicle miles traveled (VMT), providing mobility to the public, pursuing environmentally and sustainable transportation options, and maximizing public benefits from investment of public funds. Over time, changes in operational strategies may be needed to achieve these goals. For example:

- WSDOT should continue to work with British Columbia Ministry of Transportation to urge the U.S. and Canada to implement preclearance, which would allow U.S. Customs and Border Protection to conduct all immigration and custom inspection activities at Pacific Central Station in Vancouver, B.C. eliminating the southbound stop at the border. This change would reduce scheduled travel time by 10 minutes and eliminate additional delay risks associated with the additional stop.

- WSDOT should periodically re-examine arrival and departure times, the frequency of rail service to each station and other operational characteristics as needed to optimize the service. The state should work with service partners, stakeholders and communities to consider "express" or "limited" service models and formalize policies based on: *New Stop Evaluation – Auburn* study; and the *2012 Cascades Rail Corridor Management Workplan.*

[57] NCHRP Report 586: *Rail Freight Solutions to Roadway Congestion – Final Report and Guidebook.* Final Report and Guidebook. 2007: www.nap.edu/catalog.php?record_id=14098.

Recommendation #A3.2: WSDOT should adopt a formal policy on adding or consolidating stops on Amtrak Cascades.

WSDOT is pursuing numerous strategies to manage costs and increase ridership in order to maintain service levels without additional taxpayer subsidy. These efforts are consistent with state policy that directs WSDOT and other state agencies to implement Lean Management methods and tools to create more value for customers with fewer resources. This guidance points to the need for WSDOT to focus on the specific requirements of Amtrak Cascades customers and service, and to achieve the goal of faster, more frequent service with schedule reliability. Establishing a transparent, fair process for evaluating new stop proposals is an important part of implementing that guidance for the benefit of the Amtrak Cascades service, interested communities and Washington taxpayers.

Interim Policy:

- Washington and Oregon are working to manage their respective services together as a unified corridor. WSDOT and ODOT's operating budgets are both very constrained: the WSDOT operating budget for Amtrak Cascades was cut by $1 million in 2013-2015. The agencies will work together to reduce station costs and implement other cost saving alternatives.
- WSDOT and ODOT will evaluate proposals to add station stops based on benefits and disadvantages for the entire service. Evaluation criteria include: consistent with State Rail Plan, operational feasibility, customer demand, station suitability, interconnectivity benefits and fiscal viability.
- The addition of a station stop should not degrade service or add cost for WSDOT, ODOT, Sound Transit, BNSF Railway (BNSF), Union Pacific (UP), Amtrak or other partners in intercity passenger rail service.
- Rail planning budgets at WSDOT and ODOT are not sufficient to complete new stop studies without additional funds. Proponents should provide funding for new stop evaluation studies.
- Major service changes will not be implemented until after 2017, due to construction and service outcome agreement commitments.

WSDOT will continue working on evaluation criteria in cooperation with Oregon, British Columbia and other corridor partners to ensure a fair, objective process for considering requests for new stops. Together with ODOT, WSDOT will initiate a public process in late 2014 to formalize a new stop policy for the corridor after both states' rail plans are complete.

Approaches to Public Private Partnerships – Examples:

Capital and Policy-Program

Service Outcome Agreement: Amtrak, BNSF Railway and WSDOT signed an agreement that outlines how rail investments will be made based on service outcomes and passenger rail performance benchmarks on rail lines shared by freight and passenger rail, such as on-time performance, faster travel times and frequency of service. The effect of the agreement is a guarantee that capital projects will result in specific service improvements.

Recommendation #A3.3: The state should ensure that passenger and freight rail metrics are in place that can appropriately evaluate the performance of mobility, efficiency, safety, reliability and environmental compatibility of proposed new projects.
Performance metrics and the corresponding targets should be used during the project selection and prioritization process to help ensure that rail projects and strategies help achieve the state's transportation system policy goals, as well as needs identified in the State Rail Plan. Finally, the use of statewide performance metrics can ensure that projects contribute to overall statewide goals (as opposed to individual local goals).

5.2 Rail's Role in Economic Development (Group B)

Need B1: Support economic development by providing access to people and industry.

One of Washington's state transportation policy goals is to ensure that the transportation system supports economic vitality. For the passenger and freight rail system, economic benefits include job creation, support of freight-dependent industries and tourism. In addition, rail provides a transportation alternative to passenger vehicle or truck, which can lead to reduced demand for roadway space, and reduces associated impacts of congestion and pavement wear and tear.[58]

Maximizing these potential benefits requires a rail system that offers connectivity to people and industries. Because much of the passenger rail traffic in the state is discretionary (meaning that passengers have other transportation options including driving, flying, taking the bus or not making the trip), an increase in connectivity or reliability of the system could improve the attractiveness of passenger rail and potentially contribute to higher ridership and revenue.

Similarly, freight rail connectivity is crucial to support international trade through Washington's deep water, river and inland ports,[59] as well as the linkages to rural industries and agricultural producers.[60] Improvements in rail connectivity may avoid additional shifts to truck; thereby reducing business costs and associated impacts to Washington's roads, congestion,

[58] The Environmental Benefits of Moving Freight by Rail. Association of American Railroads. www.aar.org/keyissues/Documents/Background-Papers/The-Environmental-Benefits-of-Rail.pdf.

[59] *Pacific Northwest Marine Cargo Forecast Update and Rail Capacity Assessment, Final Report.* BST Associates, December 2011. www.wsdot.wa.gov/NR/rdonlyres/E1743FB8-9376-4A4C-8316-14283E42A5F7/0/PNW2011PortRailForecastFinalReport.pdf.

[60] www.wsdot.wa.gov/Freight/Rail/GrainTrain.htm.

air quality and road safety.[61] Improvements in rail can increase the transportation modal options that are available to shippers.

Recommendation #B1.1: The state should support efforts to identify those intermodal and multimodal connectors that provide "first and last mile" connectivity to businesses and locations that generate freight and passenger demand. This designation should be included in the project prioritization process.

"First and last mile" connectivity refers to the ability of the state's rail system to connect to the people and industries who use (or want to use) rail. The Washington Freight Mobility Plan may identify first and last mile connectors consistent with federal guidance.

"First and last mile" connectivity for passenger rail includes the availability of the passenger to reliably connect to other modes of travel. This means there are transit, bicycle and pedestrian facilities, airports, ferry terminals, or other passenger services within a reasonable walking distance and that have compatible service schedules. "First and last mile" connectivity for freight rail includes short-line or intermodal connectors that allow for the transfer of goods off of the Class I system. First and last mile connectors enhance the efficiency of the state's rail system by increasing the ability to reach the maximum number of potential passenger and freight users.

Approaches to Connectivity Needs – Examples:

Policy/Program: Conduct periodic re-evaluation of bike storage capacity on Amtrak Cascades and adjust as needed in response to customer demand.

Need B2: Preserve access to global markets by ensuring access to Washington's ports.

International trade contributes significant economic benefits for the state of Washington.[62] According to the Office of Trade and Industry

Approaches to International Trade Support Needs – Examples:

Capital Projects: Reconstruct port/Class I main line interchange to improve throughput and minimize delay.

[61] *The Impact of Truck Congestion on Washington State's Economy- Executive Summary.* WSDOT, 2012. www.wsdot.wa.gov/NR/rdonlyres/4D53B6C5-D1DF-4A3C-9B67-FD90D4847A66/0/June2012_Impact_Freight_Congestion.pdf.

Information, export-supported jobs linked to manufacturing account for an estimated 8.6 percent of Washington's total private-sector employment.[63] Combined, $111 billion of goods were imported or exported into Washington in 2011[64]—an amount that is anticipated to grow. Much of these exports were comprised of Washington products, including agricultural and manufacturing products. International trade depends heavily on rail—and in fact international trade-related goods currently make up almost one-third (29 percent) of total rail tonnage in Washington.[65] The amount of rail tonnage associated with international trade is anticipated to grow substantially—by 2035, it is anticipated to comprise almost 43 percent of total rail tonnage.[66]

In light of this anticipated growth, the state's rail system must provide high-quality, efficient and reliable connectivity to the state's ports. Maintaining and improving our reliable rail service could increase the attractiveness of Washington ports for discretionary cargo, and could contribute to increased competitiveness for Washington State ports.

Recommendation #B2.1: The Washington State Freight Mobility Plan should include projects that enhance or support connectivity to Washington's deep water, river and inland ports.

As part of ongoing freight mobility planning efforts, WSDOT and FMSIB should work to periodically communicate with the port community and Washington-based shippers to understand their rail transportation needs and concerns. Similar to the "first mile, last mile" connectors, these concerns should be recognized in the project prioritization and selection process. This will recognize the economic importance of international and domestic trade to the state's economy within the project prioritization criteria.

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62 *Pacific Northwest Marine Cargo Forecast Update and Rail Capacity Assessment, Final Report.* BST Associates, December 2011. www.wsdot.wa.gov/NR/rdonlyres/E1743FB8-9376-4A4C-8316-14283E42A5F7/0/PNW2011PortRailForecastFinalReport.pdf.

63 www.trade.gov/mas/ian/statereports/states/wa.pdf.

64 TradeStats Express, International Trade Administration, U.S. Department of Commerce.

65 FHWA Freight Analysis Framework Commodity Flows Database, FAF3.3 Data. The international trade percentage of the total tonnages (all modes included) was computed excluding the through flows; that is flows neither originating nor terminating in Washington.

66 Ibid.

5.3 Rail System Priorities and Goals (Group C)

Need C1: Employ cost-effective strategies when investing public funds in the state's rail system.

The continuing global recession, coupled with limited federal and state transportation budgets, means that public and private transportation funding sources are increasingly scarce and competitive. These limited resources mean that WSDOT should, in every case, seek the most cost efficient solutions to alleviating rail bottlenecks, maintain track to provide for optimal efficiency, or alleviate other rail infrastructure and operational concerns.

State policy provides guidance for achieving these efficiencies, providing frameworks for making transparent, cost-effective decisions that keep people and goods moving and support a healthy economy, environment and communities.

Recommendation #C1.1: WSDOT should use performance metrics to evaluate its passenger and freight rail programs, and ensure that the program funding is aligned with demonstrated need.

Building on Recommendation A3.3, WSDOT should work with rail stakeholders to align funding programs with demonstrated needs by developing performance measures and making funding recommendations. Performance measures can enable cost-effective decision making in several ways. For example, WSDOT should evaluate the existing short-line rail assistance programs by focusing on the magnitude of demonstrated need (as established in Recommendation A2.1), and recommending program changes if warranted.

Recommendation #C1.2: The state should seek innovative funding and financing sources to leverage public funds and provide more value with limited resources.

Recognizing that capital improvements will eventually be necessary to add rail service and that railroads are primarily responsible for managing capacity on their own infrastructure, WSDOT will first identify lower-cost, non-capital approaches to improving service and managing costs before considering investment in the rail system. However, when capital projects become necessary, the state should seek to share the costs with other partners where there is sufficient public benefit. For example, the state should consider expanding the use of public-private partnerships on the rail system; the state legislature refers to these as Transportation Innovative Partnerships in RCW 47.29. Examples to consider include alleviating key freight bottlenecks and chokepoints.

There are many models available to guide public investments in the private rail system. The 2006 *Rail Capacity and System Needs Study* by the Washington State Transportation Commission provides a framework

for evaluating such investments. ODOT's *Connect*Oregon program combines selection criteria and an extensive public process to assess public benefits likely to result from investment in the private system.

Recommendation #C1.3: WSDOT will focus on the specific requirements of Amtrak Cascades service to minimize public costs and operate the system in the most efficient manner possible.
WSDOT should continue to work with service partners and stakeholders to re-examine roles and responsibilities for funding to identify efficiencies and formalize policies . Distinguish between "needs"- features required to provide a safe and efficient transportation option; and "enhancements"- features that may be desired to support other objectives, such as other passenger rail services and community development goals. Essential components could be supported with state funds; the extras could be implemented by WSDOT's partners if they are willing to assume the costs of construction and ongoing maintenance. For example, station costs are an important part of this strategy. Amtrak Cascades currently stops at 18 stations between Vancouver, British Columbia and Eugene, Oregon. Those stations are owned by a number of different entities and support passenger rail and other transportation services. The Amtrak Cascades program contributes either in part or in full to the cost of these stations, and WSDOT has identified station costs as an opportunity to significantly reduce operating expenses.

Need C2: Strengthen rail to maximize the positive benefits, while minimizing the potential negative impacts to communities and the environment.
Rail is considered by many to be an environmentally-friendly, efficient and safe transportation mode. There is evidence that rail can help to remove roadway congestion, can be less polluting than truck on a ton-mile basis, and can reduce wear and tear on roads and highways.[67] It is particularly important in Washington state, which is dependent on global trade that relies on rail transportation. However, there also are potential negative impacts from moving goods by rail. For example, rail movement can involve dust, sound, vibrations and emissions; all of which, if not mitigated, can have negative impacts on surrounding communities. Therefore, the challenge is to maximize the positive benefits of rail transportation, while minimizing the impacts to communities and the natural environment.

Recommendation #C2.1: The state should facilitate discussions about community concerns or questions about rail benefits and

[67] The Environmental Benefits of Moving Freight by Rail. Association of American Railroads. www.aar.org/keyissues/Documents/Background-Papers/The-Environmental-Benefits-of-Rail.pdf.

impacts, and help coordinate with communities, the railroads and other rail stakeholders.

This State Rail Plan describes the importance of rail transportation for supporting and growing the state economy, but also acknowledges that there are concerns by communities located near rail infrastructure. As well as noise, lighting and air quality concerns, some communities have concerns regarding the safety or congestion impacts of rail grade crossings, and other safety or environmental questions. With rail volumes projected to grow, it is possible that these community concerns will also grow. The state's role should be bring together communities, railroads and necessary stakeholders in the event that action is needed.

Recommendation #C2.2: Railroads and public agencies should continue to use WSDOT reports, studies and other materials to clearly communicate the benefits of the rail system to Washington residents.

WSDOT materials should continue using data and performance measures to communicate the positive benefits of rail in its publications. This type of communication to the public can help explain the important role of rail in the multimodal transportation network in Washington state. Those communications can also illustrate the benefit of the state's financial participation in rail, and help to build community support for new passenger or freight rail projects. Benefits should focus on cost effectiveness, mobility for passengers and freight, environmental and air quality benefits, job creation, and other easily understood metrics that resonate with the public.

Need C3: Continue to support passenger and freight rail safety and security.

Public investment in rail should support achievement of the safety policy goal to "provide for and improve the safety and security of transportation customers and the transportation system." [68] WSDOT's role in securing safety and security performance for rail travel is very limited. For the most part, rail safety and security are regulated and enforced by the FRA, Utilities and Transportation Commission (UTC), and Department of Homeland Security (DHS). WSDOT's role has traditionally been in public education, as well as supporting communications in the event of accident, complaint or other safety concern.

Recommendation #C3.1: The state should continue to support rail safety and security.

The UTC, FRA, and DHS are responsible for rail safety and security. WSDOT should continue to support grade crossing safety and public safety programs. This includes WSDOT's work supporting "Operation

Approaches to Safety and Security Needs – Examples:

Policy/Program: Operation Lifesaver.

Policy/Program: Support Implementation of Preclearance.

Capital Projects: Repair damaged or degraded track to remove derailment hazard.

[68] RCW 47.04.280 (1) (c).

Lifesaver," a national nonprofit with coordinators in each state that raise awareness of highway-rail crossing issues. Operation Lifesaver's volunteer speakers and trained instructors offer free rail safety education programs. Their efforts are consistent with the Strategic Highway Safety Plan: Target Zero, which emphasizes education as one of four key approaches to safety (including engineering, enforcement and emergency medical services).

Recommendation #C3.2: WSDOT should continue to coordinate pedestrian access in and around Amtrak Cascades stations in order to meet safety performance goals.

As WSDOT continues to invest in expanding intercity passenger rail service, they should continue to work with station owners, UTC, the FRA and local communities to identify and meet safety performance for pedestrian access to and from rail stations. This could include signage, fencing, barriers, and controlled pedestrian grade crossings of active passenger rail tracks.

Chapter 6. Implementation and Investment Plan

This plan establishes needs and recommendations for a rail system that has a complex mix of private and public ownership. This section identifies priorities for public investment as well as projects railroads plan to undertake with private funds. The policy recommendations outlined in Chapter 5 provide the framework for identifying these strategies.

Project priorities identified in adopted transportation plans are shown in Appendix D: Illustrative Project List. Most are unfunded or have secured only partial funding. They are identified here to illustrate the breadth of needs identified by railroads and rail stakeholders. Other projects that address the priority needs identified in the plan may be incorporated into the list as appropriate.

Funding and implementation of this plan will rely on a mix of private and public action. This chapter provides five and 20-year implementation and investment strategies, with an in-depth discussion of state-sponsored assets. This section also describes the limited funding sources currently available and contains information about options for funding future improvements.

6.1 Near-term (5-year) Investment and Implementation Plan

All indications show that the next five years will be a time of great change for the rail system in Washington state. Freight rail volumes are expected to grow and community discussions about potential impacts related to increasing rail traffic will continue. Passenger rail service will improve significantly as the Washington State Department of Transportation (WSDOT) and Sound Transit complete capital projects to support Amtrak Cascades and Sounder. The following section highlights capital projects and policy and program changes anticipated in the next five years.

Statewide Highlights

Capital improvements:
The following are examples of funded projects that will be constructed before 2018. New sources of funding for additional projects have not been identified for the near term.

- WSDOT capital program for Amtrak Cascades (federal grants, High Speed Intercity Passenger Rail Program).

- Sound Transit 2 plan projects for Sounder (regional taxing authority, federal grants).
- Projects funded through Freight Rail Investment Bank (FRIB) program and Freight Rail Assistance Program (FRAP) (state grants and railroad funding).
- Port projects (local, state and federal funds)
- BNSF Railway (BNSF) and Union Pacific Railroad (UP projects. This includes positive train control, funded in large part by the Class I railroads.

Policy and program initiatives:

- Incorporate rail system findings in the Washington Transportation Plan, Washington State Freight Mobility Plan and other relevant state and regional transportation plans.
- Facilitate state-level discussion about funding strategies to address local community impacts resulting from increased rail traffic at at-grade crossings.
- Short-line Railroad Plan: Collect data and develop state performance measures for short-line railroad infrastructure to guide FRIB and FRAP programs.
- Multimodal regional planning: Examples in the central Puget Sound include the city of Seattle Freight Master Plan and the Port of Seattle Container Terminal Access Study.
- Consider climate change in transportation plans and design efforts: Since 2009, WSDOT has directed project teams to consider climate change during environmental review under the national and state environmental policy acts (NEPA and SEPA).

Implementation Plan for State-Sponsored Assets

Project concepts and priorities emerge from more detailed analysis conducted at the corridor or site-specific level. Railroads, ports, and other stakeholders engage in these efforts individually and with their partners. The following describes more detailed planning and project development efforts WSDOT will undertake to address state-sponsored and state-owned rail assets in the near-term.

Amtrak Cascades Implementation Plan

WSDOT will deliver the current capital program in 2017, and work within budgetary allotments to maximize customer value. This includes continually working to maintain and improve funded service for passengers through policy, agreements, operations and capital projects.

Beyond the current capital and operational investment efforts already underway with federal funds, WSDOT will identify next steps to achieve incremental improvement towards the Amtrak Cascades vision:

- Meet Amtrak Cascades operating agreements and funding goals.
- Strengthen Pacific Northwest Rail Corridor partnerships and develop joint corridor plans—Washington, Oregon and British Columbia (B.C.).
- Explore new operating models for Amtrak Cascades that optimize schedules to increase ridership and manage costs. Include consideration of marketing, customer service improvements and cost management.
- Develop station stop policy for Amtrak Cascades to guide funding decisions concerning proposals for new stations as well as existing stops.
- Complete Service Development Plan and Fleet Management Plan for Amtrak Cascades to identify specific operational, equipment and infrastructure needs to achieve the long-range vision. This effort should include coordination with Oregon and British Columbia to identify needs along the entire corridor. Consider strategies to increase round trips, improve reliability (on-time performance, number of train cancellations and major delays) and additional schedule-time savings and higher operating speeds.
- Employ customer experience enhancements to increase the attractiveness of Amtrak Cascades for customers.
- Continue to work with transit partners and others to strengthen multimodal connections to Amtrak Cascades.

State-Sponsored Freight Railroad Implementation Plan

The state owns track for the largest short-line rail system in eastern Washington, the Palouse River and Coulee City Railroad (PCC). In addition to providing funding for the PCC from 2005 through 2008, the Washington State Legislature provided additional funds for immediate rehabilitation and maintenance needs. The state's investment in PCC through state fiscal year 2013 is up to $26 million. Additional funds are budgeted for the future to continue rehabilitation and maintenance of the track.

WSDOT has interest in protecting this investment, and keeping the line functioning well so that it can carry Washington wheat and other Washington-grown crops such as barley and legumes, as well as lumber and propane.

WSDOT and the PCC Rail Authority will develop a strategic plan to articulate priorities. The plan will identify key sections of the system that will benefit from the capability to handle railcars with a load-bearing capacity of 286,000 pounds; and develop a grade-crossing and bridge management evaluation and prioritization plan. It is likely that improvements identified in the PCC Strategic Plan will exceed available funding. Additional revenue would be required to fully address those needs. Options include investing state funds and developing the railroad business in order to move toward sustainable funding for the program.

Example Projects and Maintenance Activities

Rail projects take many shapes and forms depending on their purpose and the needs of the company or agency implementing the project. The following are examples of types of work, which may appear in projects—either individually or in combination—to allow the rail transportation system to function.

Regular maintenance of way – remove brush, clean drainage, regular track work
Regular maintenance of way promotes efficient use of the transportation system, and is necessary to maintain rail functions. Rail owners are responsible for maintaining their infrastructure.

Restore/rehabilitate drainage features, or install new drainage features
These projects can address chronic problems or restore functionality lost through deferred maintenance. Rail owners are responsible for maintaining their infrastructure.

Lifecycle replacement – replace ties, replace rail
Rail infrastructure ages, and periodically requires replacement to maintain functionality. Rail owners are responsible for maintaining their infrastructure.

Replace ballast
Ballast supports ties and rails. Replacing ballast can be performed as part of track upgrades, or to address subgrade problems, which could limit speeds or capacity. Rail owners are responsible for maintaining their infrastructure.

Bridge rehabilitation or replacement
Rail infrastructure ages, and periodically requires replacement to maintain functionality. Bridge replacement and rehabilitation is cited as a top priority for short-line railroads operating in the state. Rail owners are responsible for maintaining their infrastructure.

Maintain, replace, install new fencing
Fencing delineates property and separates rail uses from adjacent land use. Fence owners are responsible for maintaining fencing. Rail safety and security are regulated and enforced by the Federal Railroad Administration (FRA), Utilities and Transportation Commission (UTC), and the Department of Homeland Security (DHS).

Install new crossovers and switches or upgrade crossovers/switches
Switches help reduce delays and increase capacity by allowing more efficient operation of available track. Rail owners are responsible for their own infrastructure.

Add or extend sidings
Sidings help reduce delays and increase capacity by allowing more efficient operation of available track. Extending existing sidings can magnify the benefits of those sidings, with degree of benefit depending on context. Rail owners are responsible for their infrastructure.

Add additional main lines/install bypasses
Primarily adds capacity. Rail owners are responsible for their infrastructure.

Install passive crossing signs at roadway-rail intersections
Provides identification of railroad locations for roadway users and pedestrians. Rail owners are responsible for their infrastructure. Rail safety and security are regulated and enforced by the FRA, UTC, and DHS.

Install flashing light signals at roadway-rail intersections
Flashing light signals provide advanced warning for roadway users that are activated by train. Rail safety and security are regulated and enforced by the FRA, UTC, and DHS.

Install or upgrade crossing gates at roadway-rail intersections
Crossing gates provide a physical barrier between roadways and train tracks that intersect. Varieties of crossing gates are appropriate for various situations, and may include crossing arms, or even fully restricted gates. Rail safety and security are regulated and enforced by the FRA, UTC, and DHS.

Install grade separations at rail intersections
Grade separations completely separate rail movements from roadway movements. They may also be installed to separate rail movements from other rail movements. Rail safety and security are regulated and enforced by the FRA, UTC, and DHS.

Upgrade or replacement of locomotives
While the highest capital demands are typically associated with maintaining the fixed infrastructure, the locomotive fleet often is in second place. The usual short-line locomotive is old, inefficient, polluting and costly to operate. Several states, including Texas and California have programs that aid railroads in acquiring or rebuilding locomotives to meet current standards for emissions. The public gains from the greatly reduced emissions, while the short line benefits from less fuel consumption and improved performance.

6.2 Long-term (20-year) Investment and Implementation Plan

The freight forecasts in the State Rail Plan[69] project that freight rail tonnage on the state's system will double by 2035. Passenger rail service is also expected to increase and expand to achieve the state's vision for additional daily round trips and shorter travel times. Increases in coal and crude oil shipments, and development of new terminals on the west coast, could accelerate the rate of growth. Substantial operational and capital improvements will be needed to accommodate these changes.

The following serve as examples of the types of capital projects and policies and programs that may be pursued in the future to address these needs. These projects are representative of many throughout the state that have been identified by railroads, ports, transit agencies and others; and they are reflected in adopted transportation plans. Needs and associated projects identified in adopted transportation plans far exceed funds that can reasonably be expected to be available through existing revenue sources. Private investment and private-sector champions for public-private partnerships—such as those engaged in the Inland Pacific Hub effort—will be needed to address the needs. Additional detail is provided in Technical Note 4c: *Statewide Freight and Passenger Rail Needs and Opportunities*.

Capital improvements (unfunded):

The following are examples of the types of projects that have been identified to address rail system needs in the next 20 years. Funding sources to support these improvements have not been identified.

- Short-line railroad maintenance, preservation and modernization.
- Bridge and trestle reconstruction and expansion.
- Short-line/Class I interchange improvements.
- Amtrak Cascades equipment and service upgrades.
- Track improvements to accommodate passenger service, such as new bypass tracks to add capacity and upgrades to warning signal systems.
- Port/rail connectivity projects.
- New sidings and siding extensions.
- Multiple mainlines.

[69] See Technical Note 4a: Freight Forecasts and Capacity Analysis.

Policy and program initiatives:

- Investigate Amtrak Cascades service expansion, such as long-term planning for dedicated facilities for high-speed rail and increased service between Seattle and metropolitan areas in eastern Washington.

6.3 Existing Federal and State Rail Funding Sources

Railroads are responsible for maintaining and improving their own infrastructure. The following section describes some of the public funding programs that are available to public agencies and private railroads to support those activities.

Limited federal funding sources are available to support the implementation of freight and passenger rail projects. They include a small number of discretionary grant programs, including:

- 2009 American Recovery and Reinvestment Act (ARRA).
- 2008 Passenger Rail Investment and Improvement Act (PRIIA), FRA grants.
- Transportation Investment Generating Economic Recovery (TIGER) grants.

Within FRA, the grant programs include:

- Rail Line Relocations and Improvement Capital Grant.
- Disaster Assistance Program.
- High-Speed Intercity Passenger Rail Program (HSIPR).
- Railway-Highway Crossing Hazard Elimination in High-Speed Rail Corridors.
- Amtrak Capital Grants.

Some of the key projects that have been funded through these programs include the West Vancouver Freight Access Project, the North Spokane Corridor Railroad Realignment Project, and the Point Defiance Bypass Project.

In addition, there are a limited number of loan and credit programs available to finance rail projects. In the case of loans, a project sponsor borrows funds directly from a state department of transportation (DOT) or the federal government under the condition that the funds will be repaid. Credit enhancement involves the state DOT or the federal government making the funds available on a contingent, or standby, basis. An example of this is a Transportation Infrastructure Finance and Innovation Act (TIFIA) loan guarantee. TIFIA provides federal credit assistance to nationally or regionally significant surface transportation projects, including highway, transit and rail projects. The program is a low-cost debt program (borrowing tool) that may be accessed by the private sector (and in some cases the public sector). This can help to decrease the overall financing costs of the program. "Moving Ahead for Progress in the 21st Century" (MAP-21) increased the funding for TIFIA to $750 million for

FY 2013. Table 6.1 lists and summarizes the loans and tax credit programs and their intended use.

While much of the public funding for rail projects in Washington state is provided through WSDOT, other agencies also have a role. For example, UTC has limited funds available to support grade crossing improvement programs, and the Freight Mobility Strategic Investment Board (FMSIB) evaluates and ranks projects and awards grant funds.

Funding is sometimes provided and/or prioritized at a local or county agency, MPO, or other agencies such as economic development entities or ports. Local revenues can come from a number of sources, such as property tax for road projects and sales tax for transit projects. Other revenues include street use permits, gas tax, utility permits, impact fees, frontage improvement agreements and what the state refers to as a "latecomer fee." Several regional partnerships such as the Freight Action STrategy (FAST), the International Mobility and Trade Corridor program (IMTC) and Inland Pacific Hub have formed to focus on the needs of specific regions and pursue funding opportunities. These sources and strategies for funding rail projects are summarized in Table 6.2.

Table 6.1 Summary of Federal Loans and Tax Credits

Program	Code	Projects Funded	Funding
Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA)	23 USC 181-189 (U.S. Code)	Large surface transportation projects of national significance	Loans and guarantees, contingent federal loans
Railroad Rehabilitation and Investment Financing (RRIF) program	TEA-21 Section 7203 (Transportation Equity Act for the 21st Century)	Acquisition, improvement, or rehabilitation of freight and passenger rail facilities, also refinance existing debt	Direct loans and loan guarantees to public and private entities
Railroad Track Maintenance Credit Program	IRC Title 26 (Internal Revenue Code)	Railroad tracks	Tax credits to an amount equal to 50 percent of qualified railroad maintenance expenditures up to a maximum credit of $3,500 per mile of track
State Infrastructure Banks (SIB)	National Highway System (NHS) Designation Act Section 350	Transportation projects	Subordinate loans, interest rate buy downs on third-party loans, loan guarantees, and line of credit
Private Activity Bonds (PAB)	SAFETEA-LU Section 11143 (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users"	Surface transportation projects	National capacity of liability $15 billion; PAB allocations approved by U.S. DOT total over $4.2 billion supporting six projects

Table 6.2 Washington State Rail Funding and Financing Programs

Agency	Program	Projects Funded/Program Description	Funding
WSDOT	Freight Rail Investment Bank (FRIB)	Has been used to fund small capital rail projects with at least 20% funding match.	$5.0 million for eligible projects in 2013-2015.
	Freight Rail Assistance Program (FRAP)	WSDOT will prioritize the applications using criteria developed by WSDOT for freight rail assistance.	$2.75 million for projects in 2013-2015.
	Grain Train Revolving Fund	A self-sustaining program that supports farmers, short-line railroads and rural economic development, through the use of a fee to use a state-owned grain car.	The funds are generated based on a combination of miles traveled and number of days on BNSF track.
	Produce Rail Car Program	Operates 25 refrigerated rail cars to assist the agricultural community and ensure the availability of necessary equipment.	This program was funded with $2 million in federal grants and $200,000 in state transportation funds.
	2005 Transportation Partnership Program (TPA)	35 projects that include highways, local roadways and rail systems.	Freight mobility and economic projects are allocated $542 million.
	2003 Legislative Transportation Package	Improvements to assist freight transportation on rail systems and local roadways.	$12 million was invested in freight mobility and economics.
	Multimodal Transportation Programs	Projects such as intercounty service, rush hour transit service and capital projects that improve the connectivity and efficiency of the regional mobility system.	N/A
State Treasury Rail Assistance Programs	Essential Rail Assistance Account	The freight rail projects are prioritized based on eligibility requirements under the rail preservation program.	Loan program to promote rail.
	Transportation Infrastructure Account	Building surface transportation facilities representing critical mobility or economic development needs and involving various transportation modes.	Loans, grants or other means of assistance can be provided in equal amounts or as part of the cost to public or private agencies.
	Transportation Innovative Partnership Account	This account will include moneys from the Transportation Innovative Partnership Program to support transportation projects. State can use moneys under this account that are related to an established subaccount.	Loan guarantees, extension of credit, bonds, etc.

Agency	Program	Projects Funded/Program Description	Funding
Washington State Freight Mobility Strategic Investment Board (FMSIB)		Its purpose is to review, prioritize, and recommend freight mobility transportation projects that are of strategic importance to Washington. Projects include grade separations, pedestrian overpasses and Intelligent Transportation Systems (ITS) projects.	
Utilities and Transportation Commission (UTC)		The UTC administers the Grade Crossing Protective Fund (GCPF) to provide grants to railroads, local governments and other agencies that propose safety improvements at railroad crossings.	Fund awards projects between $250 and $20,000.

Source: WSDOT, State Treasury, FMSIB and UTCweb sites.

6.4 New and Innovative Funding Sources

The number of rail projects identified as needs[70] suggest that even within the 5-year timeframe, there are significant gaps in funding to match project needs. For freight rail, WSDOT would have approximately $3.9 million per year (or $85 million total) available to award to projects between 2014 and 2035 if program funding levels remain the same. This falls short of the freight rail needs identified in regional plans and for the PCC rail system. For passenger rail, there are no pre-existing funds through WSDOT that are available for passenger rail projects.

Thus, to match the funding levels required to implement projects in the 5-year and 20-year illustrative projects, it will be necessary to explore new opportunities for funding through MAP-21, and to consider non-traditional and innovative means of funding. These two groups of funding opportunities are summarized below.

MAP-21 Funding Sources

Congress reauthorized the federal surface transportation program in July 2012. The legislation, called MAP-21, replaces the previous legislation: SAFETEA-LU. Overall, MAP-21 maintains current federal transportation funding levels at just over $105 billion for fiscal years 2013 and 2014[71] (adjusted for inflation). Based on these authorization levels it is likely that Washington will continue to receive federal transportation funds for the next several years at levels consistent with what has been received under the previous transportation bills. However, MAP-21 did extend several programs that have been used, in the past, to fund passenger and freight rail projects, and raised the funding levels of several other important programs. For example MAP-21 expanded the funds available through the TIFIA from $122 million in FY 2009 to $750 million in FY 2013, to $1 billion by FY 2014. The different programs under MAP-21 are summarized in Table 6.3.

[70] See Appendix L: Technical Note 5: *Rail Investment Plan and Project List.*
[71] www.fhwa.dot.gov/map21/.

Table 6.3 MAP-21 Freight and Passenger Rail Program

Program	Type[a]	Code/Agency	Funding Use	Funding Source/ Allocation	Funding Levels
Significant Freight Provisions	New – Formula Program	MAP-21 Sections 1115-1118, 1201-1203, 1510-1511, 32801-32802	Establishment of national freight policy, national freight network, national freight strategic plan, DOT freight plans, performance reports and so on.	Federal share generally 80%	~ $2B
Surface Transportation Program (STP)	Restructured – Formula Program	MAP-21 Section 1108/ FHWA	Provides flexible funding that may be used for projects to preserve and improve highway, bridge, tunnel projects as well as transit capital projects.	Federal share is 80%	2013 – $10B, 2014 – $10.1B
Congestion Mitigation and Air Quality Program (CMAQ)	Restructured – Formula Program	MAP-21 Section 1113/ FHWA	Provide funding for projects to help meet requirements of Clean Air Act, including purchase of natural gas vehicles, diesel retrofits, etc. On occasion, CMAQ funding has been used to pay for intercity rail service, including Maine's Downeaster train.	Federal share generally 90%	2013 – $2.21B; 2014 – $2.23B
Rail-Highway Crossings Program (RHCP)	Set-aside from Highway Safety Improvement Program (HSIP) – Formula Program	MAP 21 Section 1519 (USC Section 130)/ FHWA	Funds safety improvements to reduce the number of fatalities, injuries and crashes at public grade crossings.	Federal share is 90%	2013 – $220M, 2014 – $220M
Projects of National and Regional Significance (PNRS)	Carried Over – Discretionary Program	MAP-21 Section 1120/ FHWA	Projects of national significance (rail, highway or any project eligible under 23 USC).	Federal share is 80%	2013 – $500M
Transportation Alternatives Program (TAP)	New – Formula Program	MAP-21 Section 1122/ FHWA	New program that provides funds for various alternative transportation projects, including conversion of abandoned rail for other uses.	Federal share generally 90%	2013 – 809M; 2014 – 820M
Fixed Guideway Capital Investment Grants (New Starts)	Carried Over – Discretionary Program	MAP-21 Section 20008/ FTA	Provides grants for new and expanded rail, bus rapid transit and ferry systems; defined new category of projects known as core capacity projects.	Maximum federal share is 80%	2013 – $1.9B, 2014 – $1.9B
State of Good Repair Grants	New – Discretionary Program	MAP-21 Section 20027/ FTA	Repair and upgrade the nation's rail transit systems along with high-intensity motor bus systems that use high-occupancy vehicle lanes.	Federal share is 80%	2013- $2.1B, 2014 – $2.2B

Source: U.S. DOT, FHWA, FTA, FRA web sites.

[a] For MAP-21 programs, "Carried- over" means the program is carried over from SAFETEA-LU, "New" means the program is a newly established program, and "Restructured" means the program is SAFETEA-LU, but is re-organized or consolidated.

Potential Future Revenue Sources for Washington to Consider

State level rail funding programs are usually replenished with money from a combination of revenue sources, mostly associated with motor vehicles. Currently, Washington's state revenue sources for rail are derived primarily from a combination of fees and taxes on driver's licenses, light vehicle weight fees and a portion of the sales tax on automobiles and rental car taxes. While some of these mechanisms are used by many states, some fees are only levied by a few other peer states.

State Funded Allocation Example: Oregon state's *Connect*Oregon program provides one example of a state-funded program that is able to provide grants and loans to the private sector. Several rail stakeholders endorsed this type of program as a desirable model to allow for-profit companies to compete for infrastructure investment funds.

There are also several other revenue sources that are in use in other states that may be appropriate for WSDOT to consider in the future. These revenue sources would require additional vetting and study to determine their feasibility and applicability for the Washington context. However, they may be worth considering for rail planning and project implementation in the future. Table 6.4 provides a summary of the potential revenue sources, their key benefits and drawbacks.

Table 6.4 Potential Future Public Revenue Sources for States to Consider

Name	Key Benefits	Key Drawbacks for Washington State
Road Usage Charge (Vehicle Miles Traveled-Based Fee)	• Provides a long-term, sustainable, and substantial source of revenue that replaces an old and ineffective structure.	• High administrative and legislative burden. • Long timeframe for implementation (post 2017). • May meet with public opposition. • Would face considerable competition for funding from highway/roads, multimodal and non-motorized transportation modes.
Sales Tax on Motor Fuels	• Relatively stable source once established.	• State constitution currently restricts motor fuel taxes for highway purposes.[72] • Revenue sources that can be generated are minor and diminishing. • Has traditionally met with coordinated opposition in Washington.

[72] www.wsdot.wa.gov/Finance/fueltaxes.htm.

Name	Key Benefits	Key Drawbacks for Washington State
Lottery Proceeds and other non-transportation related general funding sources	• Proven allocation of funds for intermodal improvement (modeled after *Connect*Oregon). • A significant source of rail project revenue that is dedicated.	• Need legislative approval and can face significant barriers to compete with money for education and other current lottery beneficiaries. • Would face considerable competition for funding from highway/roads, multimodal and non-motorized transportation modes.
Special Districts	• Potential for high revenue yield. • Enforcement and collection mechanism relatively easy to establish.	• Politically challenging to create a large, new district that is multijurisdictional. • High relative administrative burden.
Railroad Property Tax Reallocation	• Railroad property taxes would be used only for railroad improvements.	• Rural counties may lose disproportional share of their tax revenues. • Class I railroads may oppose using their taxes to support short-line or competitor railroads.
Railroad Tax Credit	• Incentivizes private investment from railroads, which can bring jobs and regional growth. • Relatively easy to adopt.	• Not a stand-alone rail revenue strategy. Still need to be used in conjunction with other options above.

Source: Cambridge Systematics, Inc.

In addition, Washington can also consider public-private partnerships (PPPs) for funding rail projects. This concept has assisted in the funding of several large infrastructure projects, including: the Alameda Corridor in Los Angeles, the CREATE program in Chicago, the Heartland Corridor and the National Gateway, and the FasTracks Transit Program in Denver. These projects represent different forms of PPPs, including third-party finance, public financing with private contributions, concessions and so on. Of particular interest to Washington are branding strategies, which can generate revenue through features such as naming rights, advertisements and development rights. For instance, Tampa's TECO Streetcar receives private money from TECO Energy in exchange for streetcar naming rights; and the Grand Central Terminal in New York partnered with Apple, Inc. to open a 23,000-square foot retail space in the terminal.[73] In Washington, the Amtrak Cascades has already experimented with

[73] http://web1.ctaa.org/webmodules/webarticles/articlefiles/RAIL_29_Tour.pdf.

branding, most recently with the "King Tut" train in 2012 and Seattle Sounders Football Club.[74]

PPPs can be a viable means of facilitating project-specific funding, thereby reducing the pressure on other funding mechanisms. The major value of PPPs is not in providing capital that would otherwise be inaccessible, but in facilitating more rapid capital investment at a comparable or even lower financing cost.

In Washington, PPP projects are harder to implement because RCW 47.29.060 requires that "any debt issued to pay for the transportation project must be issued by the state treasurer," effectively requiring legislative approval for private financing. This legislative restriction means that PPP project approvals can be complex, slow and costly, which can thwart smaller projects from becoming PPPs. However, given current funding situations, perhaps more innovative PPP financing mechanisms can be considered, especially given that rail projects usually already involve multiple partners with shared interests (both public and private).[75]

[74] http://amtrakcascades.com/News_06252012.htm.
[75] www.leg.wa.gov/JTC/Documents/Studies/P3/P3FinalReport_Jan2012Web.pdf.

Chapter 7. Conclusion

The purpose of the Washington State Rail Plan is to describe a vision for the rail system, assess what is working well and what needs to change to achieve that vision, and identify priorities for public investment and action to make that vision a reality. Based on the foundation provided by many years of thoughtful rail planning and informed by extensive technical analysis and public outreach, the resulting plan highlights critical needs facing the system and outlines a series of recommendations to address them. Many of the near-term priorities focus on improving efficiencies to get the most value possible out of the existing system and doing the preparation work needed to successfully secure improvement funds in the future. The Investment and Implementation Plan outlines priority actions for the next five years as well as in the next 20 years.

So, what happens next? The State Rail Plan is not an end point. Instead, the plan is meant to guide and inform continuing public investment and action on the rail system:

- Deliver funded capital projects to improve rail service.
- Incorporate results of the State Rail Plan into State Freight Mobility Plan and Washington Transportation Plan.
- Continue collaborative planning with stakeholders and partners to refine and focus investment priorities.
- Initiate scoping and project development to prepare for future funding opportunities.

Appendices

Appendix A: List of Technical Reports

State Rail Plan Technical Notes

Reports are available by request. Please contact the WSDOT Rail Division at rail@wsdot.wa.gov or 360-705-7900.

- Technical Note 1: *Vision and Goals*
- Technical Note 2: *Freight and Passenger Rail Inventory*
- Technical Note 3a: *Freight Rail Demand, Commodity Flows, and Volumes*
- Technical Note 3b: *Passenger Rail Usage and Impacts of the Rail System on Washington State*
- Technical Note 4a: *Freight Forecasts and Capacity Analysis*
- Technical Note 4b: *Passenger Rail Ridership Forecasts*
- Technical Note 4c: *Statewide Freight and Passenger Rail Needs and Opportunities*
- Technical Note 5: *Rail Investment Plan*
- Technical Note 6: *Institutional Framework and Funding Sources for Rail*

Reference Reports

Available at www.wsdot.wa.gov/Rail/Plans

- *New Stop Evaluation – Auburn* (Amtrak Cascades study)
- *Washington-Oregon Corridor Management Workplan*
- *Cascades Corridor Station Design Criteria*
- Previous Plans:
    - *Amtrak Cascades Mid-Range Plan* – December 2008
    - *Amtrak Cascades Mid-Range Plan Appendices* – December 2008
    - *Washington State Long-Range Plan for Amtrak Cascades* – February 2006
    - *Washington 2010-2030 Freight Rail Plan*

Appendix B: Crosswalk Between the FRA State Rail Plan Guidance and the State Rail Plan Format

FRA Guidance Sections	FRA Titles	State Rail Plan Chapter Number	State Rail Plan Chapter Name
1.0	The Role of Rail in Statewide Transportation	1	Introduction
1.1 1.2 1.5		3	Rail Vision and Policy
1.3 1.4		2	Rail System Overview
2.0	The State's Existing Rail System	2	Rail System Overview
2.1 2.2 2.3 2.4 2.6 2.7		4	Rail System Strengths and Challenges
2.5		2 6	Rail System Overview Implementation and Investment Plan
3.0	Trends and Forecasts	4	Rail System Strengths and Challenges
4.0	Rail Service Needs and Opportunities	5	Rail System Needs and Recommendations
5.0	Proposed Passenger Rail Improvements and Investments	6	Implementation and Investment Plan
6.0	Proposed Freight Rail Improvements and Investments	6	Implementation and Investment Plan
7.0	The State's Long-Range Rail Service and Investment Plan	6	Implementation and Investment Plan
8.0	Coordination and Review	Technical Note	Technical Note 1: *Vision and Goals*

Appendix C: Acronyms

Acronym	Term
AADT	Annual Average Daily Traffic
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ABS	Automatic Block Signaling
ADA	Americans with Disabilities Act
Amtrak	National Railroad Passenger Corporation (*Am*erican *Trak*)
ARRA	American Recovery and Reinvestment Act of 2009
B.C.	British Columbia
B/C	Benefit Cost
BCMoTI	British Columbia Ministry of Transportation and Infrastructure
BDTL	Ballard Terminal Railroad
BNSF	BNSF Railway
BTU	British Thermal Unit
CAGR	Compound Annual Growth Rate
CBO	Congressional Budget Office
CBRC	Columbia Basin Railroad
CERB	Community Economic Revitalization Board
Class I	Railroad with annual operating revenue of more than $433.2 million.
Class II	Railroad with annual operating revenue between $34.7 million and $433.2 million. Also known as regional railroads.
Class III	Railroad with revenues of less than $34.7 million and engaged in line-haul transportation; also known as short-line railroads. Switching and terminal railroads are classified as Class III regardless of revenue.
CLC	Columbia and Cowlitz Railway
CMAQ	Congestion Mitigation and Air Quality Program
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO2e	Carbon Dioxide Equivalent
COFC	Container on Flat Car

Acronym	Term
CSCD	Cascade & Columbia River Railroad
CTC	Centralized Traffic Control
CW	Central Washington Railroad
DHS	Department of Homeland Security
DOR	Department of Revenue
DOT	Department of Transportation
EAST	Eastside Rail
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESHB	Engrossed Substitute House Bill
EWG	Eastern Washington Gateway Railroad
FAF3.3	FHWA Freight Analysis Framework Version 3.3
FAK	Freight All Kinds
FAST	***F***reight ***A***ction ***St***rategy
FC	Football Club
FHWA	Federal Highway Administration
FMSIB	Freight Mobility Strategic Investment Board
FRA	Federal Railroad Administration
FRAP	Freight Rail Assistance Program
FRIB	Freight Rail Investment Bank
FTA	Federal Transit Administration
FY	Fiscal Year
g	grams
gCO_2e	Emissions per Ton Mile
GCPF	Grade Crossing Protective Fund
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GRNW	Great Northwest Railroad
GSP	Gross State Product
HSIRP	High-Speed Intercity Rail Program

Acronym	Term
HSR	High-Speed Rail
ID	Idaho
IHP	Inland Pacific Hub
IMTC	International Mobility and Trade Corridor
IRC	Internal Revenue Code
ITS	Intelligent Transportation Systems
KFR	Kettle Falls International Railway
LCV	Long Combination Vehicles
LNG	Liquefied Natural Gas
LTL	Less than Truck Load
LVSW	Longview Switching Company
MAP-21	Moving Ahead for Progress in the 21st Century Act
MP	Mileposts
MPO	Metropolitan Planning Organization
MRL	Montana Rail Link
MSN	Meeker Southern Railroad
MT	Main Line Track
MVET	Motor Vehicle Excise Tax
MVT	Mount Vernon Terminal Railway
NAFTA	North American Free Trade Agreement
NAICS	North American Industry Classification System
n.e.c.	Not elsewhere classified
NEPA	National Environmental Policy Act
NHS	National Highway System
NOx	Nitrous Oxides
ODOT	Oregon Department of Transportation
OPEB	Other Post-Employment Benefits
OR	Oregon
ORCA	One Regional Card for All
ORNL	Oak Ridge National Laboratory

Acronym	Term
OTP	On-Time Performance
PAB	Private Activity Bonds
PAW	Patriot Woods Railroad
PCC	Palouse River and Coulee City Railroad
PHMSA	Pipeline and Hazardous Material Safety Administration
PIERS	Port Import Export Reporting System
PM	Particulate Matter
PNRS	Projects of National and Regional Significance
PNWRC	Pacific Northwest Rail Corridor
POCH	Chehalis-Centralia Railroad
POVA	Pend Oreille Valley Railroad
PPP	Public-Private Partnerships
PRB	Powder River Basin
PRIIA	Passenger Rail Investment and Improvement Act of 2008
PSAP	Puget Sound & Pacific Railroad
PSRC	Puget Sound Regional Council
PTC	Positive Train Control
PVJR	Portland-Vancouver Junction Railroad
R&D	Research and Development
RCW	Revised Code of Washington
RHCP	Rail-Highway Crossings Program
ROI	Return on Investment
RRB	Railroad Retirement Board
RRIF	Railroad Rehabilitation and Improvement Financing
RS	Royal Slope Line
RSIA	Rail Safety Improvement Act of 2008
RTPO	Regional Transportation Planning Organization
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SCAC	Standard Carrier Alpha Code (Railroad Reporting Mark)
SCTG2	Standard Classification of Transported Goods

Acronym	Term
Sea-Tac	Seattle-Tacoma International Airport
SEPA	State Environmental Policy Act
SFY	State Fiscal Year
SIB	State Infrastructure Banks
SoDo	South of Downtown (in Seattle)
Sound Transit	Central Puget Sound Regional Transit Authority
ST2	Sound Transit 2
STB	Surface Transportation Board
STP	Surface Transportation Program
Talgo	Patentes Talgo, S.A. of Madrid, Spain
TAP	Transportation Alternatives Program
TCRY	Tri-City and Olympia Railroad
TCS	Traffic Control System
TEA-21	Transportation Equity Act for the 21st Century
TEIS	Transportation Executive Information System
TEU	Twenty-Foot Equivalent Units
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIGER	Transportation Investment Generating Economic Recovery
TMBL	Tacoma Rail Capital/Tidelands Division
TOFC	Trailer on Flat Car
TPA	Transportation Partnership Program
TRMW	Tacoma Rail Mountain Division
TWC	Track Warrant Control
UP	Union Pacific Railroad
URCS	Uniform Rail Costing System
U.S.	United States
USC	U.S. Code
UTC	Utilities and Transportation Commission
UW	University of Washington

Acronym	Term
WA	Washington
WIR	Washington and Idaho Railroad
WSDOT	Washington State Department of Transportation
WSTC	Washington State Transportation Commission
WTO	World Trade Organization
WTP	Washington Transportation Plan
YCR	Yakima Central Railroad

Appendix D: Illustrative Project List

(List updated 10/3/2013)

This appendix provides a listing of rail-related improvements that have been identified and programmed through various state and regional plans. Some of these projects are fully funded and underway, while others are illustrative of what should be accomplished to achieve desired outcomes in terms of capacity, system preservation, safety, community impacts and other aspects. Such "illustrative" projects are the result of an organized and rigorous planning process, and may be included in regional and state plans even though financial resources have not been identified. Beyond that, the order of the projects listed is not indicative of their relative merit or potential funding priority.

This appendix consists of three tables:

- Table D.1 lists the intercity passenger and commuter rail projects. This includes planned projects along the entire Pacific Northwest Rail Corridor, including Oregon and British Columbia.

- Table D.2 lists freight-related projects located on Class I and short-line railroads, as well as multimodal and other rail projects. The type of project is identified in the first column labeled Type. Class I projects are labeled with a 'C', short-line with an 'S', multimodal with an 'MM', and other with an 'O'.

- Table D.3 lists rail-highway grade crossing improvements. These projects consist of grade separations, where level crossings will be eliminated through construction of rail or highway bridges, and improvements to at-grade crossings through installation of improved crossing systems, separate pedestrian crossing arms and signals, etc.

For intercity passenger service improvements, WSDOT's 2006 *Long-Range Plan for Amtrak Cascades* describes a long-term program to achieve a set of service outcomes by 2023. These projects are shown in the listings. Some of the projects identified in that plan are now underway as part of the $800 million program funded by ARRA. In light of these investments, changing needs and funding options, and shifting priorities. An updated Service Development Plan for Amtrak Cascades will be completed in 2014.

The tables do not typically include costs for projects other than those for which funding has been fully committed. The plans from which the lists have been compiled vary greatly in age and level of detail, and thus would not allow comparisons among the various projects.

Table D.2 includes only a few projects on Class I freight railroads that do not involve public involvement. With a planning horizon that is typically

five years or less, the Class I railroads use their own financial resources to undertake improvements that provide a direct financial return. Listed short-line projects address the needs of state-owned properties, as well as some specific infrastructure needs on private lines.

For each project, information is provided on following key elements:

- *Location.* Geographic location of project.
- *Project Name.* Short name of project.
- *Source*. Adopted plan in which project is listed. For some funded improvements, the grant announcement has been used. For Amtrak Cascades improvements, most are drawn from the WSDOT Rail Division Project List that can be found on the WSDOT web site at www.wsdot.wa.gov/projects/rail. Others are drawn from WSDOT's 2006 *Long-Range Plan for Amtrak Cascades.*
- *Description*. Brief description of the project, and the benefits that will be achieved upon completion.
- *Projected completion date*. Year in which the improvement is expected to be completed.
- *Funding sources*. If the project funding has been identified, this column identifies the source of funds. In addition to various state funds, many projects currently underway are receiving federal funds provided by the American Recovery and Reinvestment Act of 2009 (ARRA), the High-Speed Intercity Passenger Rail (HSIPR) program, and five generations of Transportation Investment Generating Economic Recovery (TIGER) discretionary grants.
- *Areas of impact*. Anticipated primary benefits associated with each project are identified by key area, such as system capacity, system preservation, safety and security, etc. This arrangement permits classifying projects by benefit area.

Table D.1 Intercity Passenger and Commuter Rail Projects

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
						System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
Funded													
Kelso	Kelso Martin's Bluff - Kelso to Longview Jct.	WSDOT Rail Division Project List	This project will upgrade existing track and add a third main track between Kelso and Longview Junction. This will separate freight and passenger rail traffic, allowing trains to move around each other, ultimately improving the reliability and on-time performance of Amtrak Cascades trains.	2017	ARRA		✓	✓					
Kalama	Kelso Martin's Bluff - New Siding	WSDOT Rail Division Project List	This project will upgrade approximately 3.8 miles of railroad siding track near the Port of Kalama. The new and upgraded siding track will allow freight trains to move on and off the mail line tracks at higher speeds, resulting in fewer delays to Amtrak Cascades passenger trains.	2017	ARRA	✓		✓					
Kalama	Kelso Martin's Bluff - Toteff Siding	WSDOT Rail Division Project List	This project will extend approximately one mile of siding track near the south end of the Port of Kalama and construct a new roadway bridge over the railroad tracks at Toteff Road. This project will also upgrade switch components in the tracks. Extending the siding track, along with other improvements, will eliminate delays for cars and trucks at crossings, adds capacity and reduces conflicts between passenger and freight trains.	2017	ARRA	✓		✓					✓
Mt. Vernon	Mt Vernon Siding Extension	WSDOT Rail Division Project List	This project will extend the Mount Vernon Siding track to accommodate longer freight trains, improving capacity of the railroad for intercity passenger rail operations. The siding extension will provided improved for freight trains and increase rail safety as well as reliability of Amtrak Cascades.	2014	2003 Legislative Transportation Package (New & Used Vehicle Sales Tax) - $2.12M; 2010 HSIPR grant - $3.3M; Additional state funds - $5.2M	✓		✓					
Vancouver	Vancouver - Rail Bypass and W. 39th Street Bridge	WSDOT Rail Division Project List and \http://www.portvan	This project will add a new bypass tracks in the rail yard that will allow passenger trains to bypass congestion caused by freight trains. In addition, the new vehicle/pedestrian/bicycle bridge over the railroad	2016	State 03 MMA ($53.7M), State MMA $51.4M), FHWA ($13.6M), Local	✓		✓		✓		✓	✓

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
						System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
		usa.com/wvafa/funding/	tracks at the West 39th Street crossing will enhance safety. This project will reduce freight and passenger congestion, increase safety, and help Amtrak's on-time performance.		($999k),								
Amtrak Cascades Corridor in Washington	Corridor reliability Supplemental Work	WSDOT Rail Division Project List	This project will identify, design and construct slope stabilization needs along tracks between Vancouver, WA and the Canadian border to prevent service disruptions due to mudslides and enhance safety as well.	2013	ARRA		✓	✓			✓		✓
Amtrak Cascades Corridor in Washington	Corridor Reliability Upgrades North	WSDOT Rail Division Project List	Will address deficiencies along the corridor by improving by upgrading track infrastructure between Everett and U.S./Canadian border at Blaine with better technology and equipment. This will include cleaning ditches to improve drainage, grading and modifying areas where water is collecting, cleaning and replacing ballast, removing and replacing ties, and relaying and resurfacing rail.	2016	ARRA		✓	✓				✓	✓
Amtrak Cascades Corridor in Washington	Corridor Reliability Upgrades South	WSDOT Rail Division Project List	This project will address deficiencies along the corridor by improving track quality, reliability, and passenger ride comfort by upgrading track infrastructure between Nisqually and the Columbia River with better technology and equipment. Includes cleaning ditches to improve drainage, grading and modifying areas where water is collecting, cleaning and replacing ballast, removing and replacing ties, and relaying and resurfacing rail.	2016	ARRA		✓	✓				✓	✓
Amtrak Cascades Corridor in Washington	New Locomotives	WSDOT Rail Division Project List	Washington state is purchasing new passenger coaches and eight locomotives. This "next generation" rail equipment will feature better fuel efficiency, added passenger comfort, travel conveniences and safety upgrades.	2016	ARRA	✓	✓	✓			✓	✓	✓
Tacoma	Tacoma - Bypass of Point Defiance	WSDOT Rail Division Project List	This project proposes to reroute passenger trains to an existing rail line along the west side of I-5 through south Tacoma, Lakewood, and DuPont. It will reconnect back to the BNSF Railway main line near	2017	ARRA	✓	✓	✓					

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
						System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
			Nisqually, on the east side of I-5. The end result will be more frequent, reliable, and faster Amtrak Cascades service.										
Vancouver	Vancouver - New Middle Lead	ARRA	Consists of a second connecting or "lead" track approx. 1,300 feet long located approximately between MP 135.9 on BNSF's Seattle Subdivision and about MP 10.2 on the BNSF Fallbridge Subdivision. This new lead track will extend around the south end of the BNSF Vancouver Yard, in Vancouver, WA, and support freight train speeds of 25 mph. The lead track will increase capacity on and off the north-south main line.	2016	ARRA	✓		✓	✓	✓			✓
Vancouver	Vancouver - Yard Bypass Track	ARRA	This project is a phase of the larger Vancouver- Rail Bypass and West 39th Street Bridge project. Constructs approximately 15,200 foot long bypass track between the BNSF Railway's Seattle Subdivision and Fallbridge Sub in Vancouver, WA, allowing freight traffic to clear the north-south main tracks quickly.	2016	ARRA	✓		✓					✓
Tacoma, Lakewood	Commuter Rail Project: Tacoma/ Lakewood	Sound Transit	Implementation of commuter rail service between Tacoma and Lakewood, through design and construction of facilities and equipment (including track and signal) on 7 miles of track and two stations with parking, bus/transfer, pedestrian and bicycle facilities and maintenance/storage/layover. In addition, the project includes environmental documentation and preliminary engineering-design to construct a rail grade separated overcrossing at Pacific Avenue and South 26th Street in downtown Tacoma. This project is coordinated with affected local agencies, including TAC-73 for the feasibility study and pre-design. This project has received 2009 ARRA funds.	2013	HSR, ARRA, and Various State Funds			✓				✓	
Rail track between the Tacoma Dome Station and	Reservation Junction Track & Signal (Tacoma Trestle	Sound Transit	Design and construction of additional track and new structures along an approximately 0.65 mile section of track between the existing Tacoma Dome Station and the vicinity of M Street in Tacoma.			✓							✓

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
						System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
vicinity of M St, Tacoma	Replacement)												
Tukwila: south of Longacres Way and west of BNSF tracks	Tukwila Station Sound Transit and WSDOT	WSDOT Rail Division Project List	Preliminary engineering, design, right-of-way acquisition and eventually construction work for a permanent commuter rail station in Tukwila. The station will be located south of Longacres Way and west of the BNSF railroad tracks. The station may include two platforms with canopies, parking, a bus transfer facility, and bike lockers. This project received 2009 ARRA funds.	2014	ST2 and WSDOT ARRA			✓				✓	
Seattle-Lakewood	Commuter Rail Project: Seattle/Tacoma Sound Transit	Sound Transit	Implementation of commuter rail between Seattle and Tacoma serving seven stations. Project includes improvements to stations, platforms, track/signals, CCTV, layover/storage and related equipment. Commuter rail service along this corridor began in September 2000, Sound Transit continues to improve service and operations along this corridor. This project's P/E, ROW and construction phases have also been funded previously in the amount of $1,424,889,903.	2013				✓				✓	
Blaine	Blaine Swift Customs Facility Siding	WSDOT Rail Division Project List	This project constructs 9000 ft main track on Cascades line near Blaine and converts existing main track into a second siding. Work includes track, ties and ballast. Project will reduce freight/passenger conflict, reduce congestion, adds capacity and eliminates bottleneck, shorten travel time and improve reliability	2015	ARRA- $5M; State - $3.5M	✓		✓		✓	✓		
Planned													
Cowlitz/ Lewis County	Kelso to Chehalis - High Speed Main Tracks	WSDOT Long Range Plan for Amtrak Cascades	This project would design, permit, purchase right-of-way, and construct a 34-mile high-speed alignment from just north of Kelso to just south of Chehalis that can be operated at up to 150 mph. This will require 15 corridor miles of new alignments away from the BNSF Railway main line near Castle Rock, Vader, Winlock, and Napavine. Realign the BNSF main tracks in five locations between north of Kelso and Castle Rock. The	>5 years		✓		✓	✓				

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
						System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
			corridor will have a single high-speed main track over the entire distance with another 18 miles of second high-speed main at the south end. It will also bypass, close, or grade separate 25 highway-rail at-grade crossings.										
Whatcom County	Bellingham to Blaine High-Speed Track	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 101.5 to 117.1. Project entails construction of a high-speed track and associated facilities. The purposed of the project is to allow passenger trains to operate at 110 mph, providing part of the travel time reduction needed between Seattle and Vancouver, BC to achieve WSDOT's service goal.	>5 years		✓		✓	✓				
Whatcom County	Bellingham Siding Extension	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 92.2 to 97.9. Will allow passenger and freight trains to pass each other. Current siding at this location is not long enough to accommodate most freight trains.			✓		✓					
Whatcom County	Bellingham GP Update	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 96 to 97. Rehabilitation to improve the track so that it can handle higher speeds. This improvement is needed because the current condition of the existing track does not meet FRA standard for increased speeds.					✓					
Whatcom County	Burlington to Bellingham High-Speed Track	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 72.2 to 86.5. Entails construction of fourteen miles of high-speed track and associated facilities. The project is to allow passenger trains to operate at 110 mph, providing part of the travel time reduction needed between Seattle & Vancouver, BC to achieve WSDOT's service goal.	>5 years		✓		✓	✓				
Whatcom County	Marysville to Mount Vernon High-Speed Track	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 39.19 to 67.5. Entails construction of twenty-eight miles of high-speed track and associated facilities. Will allow passenger trains to operate at 110 mph, providing part of the travel time reduction needed between Seattle and Vancouver, BC to achieve WSDOT's service goal.	>5 years		✓		✓	✓				
King County	Ballard Bridge Speed Increase	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 6.2 to 6.4. Current speed on bridge is twenty miles per hour. Increasing the Talgo speed limit to forty-five miles per hour and the freight speed limit			✓		✓					

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
						System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
			to thirty-five miles per hour improves service and increases capacity and reliability.										
King County	King Street Station Track Improvements	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 0.2 to 0.5. New tracks and platforms at King Street Station will accommodate the planned increase in intercity, commuter, and freight trains.	2015	2005 Partnership Funding (weight Fees)			✓					
King County	Seattle Maintenance Facility - Phases III and IV	WSDOT Long Range Plan for Amtrak Cascades	A new Amtrak maintenance facility is being constructed south of downtown Seattle, near Safeco Field. This facility will be the primary maintenance and repair site for current and future Sounder commuter train, Amtrak Cascades trains & Amtrak's long-distance trains.					✓					
King County	Auburn South Third Main Track	Sound Transit	Rail milepost 20.9 to 24.2. Sound Transit will construct a third main line between Auburn and south of Kent. Extending the third main track to the south end of Auburn Yard provides a configuration that allows movement from either track without slowing commuter trains making the Auburn station stop.			✓		✓					
King County	Seattle to Kent Third Main Track	City of Seattle Freight Mobility Strategic Action Plan, June 2005	Complete full third track between Seattle and Tacoma to increase capacity and reduce conflicts. Part of agreement between BNSF and Sound Transit.			✓		✓					
Pierce County	Reservation to Stewart Third Main Track	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 38.2 to 33.9. A new main line will be built next to the existing double track. The purpose of this track is to provide a dedicated track for lower speed freight trains that originate, terminate, or stop at Tacoma.			✓		✓		✓			
Pierce County	Hannaford to Nisqually Third Man Track	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 51.39 to 24.5. A new twenty-six mile-long main line will be built next to the existing double track between Nisqually and the Lewis/Thurston county border, and a second new main line track will be built between rail milepost 36.2 and rail milepost 51. To allow passenger trains to operate at 110 mph.			✓		✓					
Lewis County	China Creek Crossover	WSDOT Long Range Plan for	Rail milepost 53.5 to 53.6. Construction of this crossover provides flexibility for trains to move			✓		✓					

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
						System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
		Amtrak Cascades	between tracks when entering Centralia's Union Depot, which ensures that passengers can exit the train on the west side of the rail line, adjacent to the station.										
Lewis County	Chehalis to Hannaford Third Main Track	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 49.49 to 51.39. A new main line will be built next to the existing double track. This track will provide sufficient capacity for reliable passenger train operations. This project will also construct a second platform at Centralia's Union Depot, giving passengers trains a choice of two tracks.			✓		✓					
Lewis County	Chehalis Siding	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 56.8 to 58.3. This area often gets congested because industry trains are using the main lines for switching and idling. Construction of a new siding off the main line would allow freight trains to wait and switch on the siding, thus freeing up the main line.			✓		✓					
Lewis County	Chehalis Junction Crossover	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 58.5 to 58.8. The new set of crossovers in Chehalis will allow faster Amtrak Cascades trains to move around slower freight trains, at speeds up to 50 mph. This project will provide improved Amtrak Cascades on-time performance and faster, more frequent Amtrak Cascades service.			✓		✓					
Lewis County	Newaukum Crossover	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 60.6 to 60.8. Construction of this crossover provides flexibility for trains to move between tracks. This project will provide increased reliability and capacity.			✓		✓					
Lewis County	Winlock to Chehalis Third Man Track	WSDOT Long Range Plan for Amtrak Cascades	The purpose of this project is to allow passenger trains to operate at 110 mph, providing part of the travel time reduction needed between Seattle and Portland, OR to achieve WSDOT's service goal. This project is needed because of current physical condition of the track and the current track geometry in this location does not allow trains to travel at high speed.			✓		✓					
Lewis County	Ostrander to Winlock Third and Fourth Main Track	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 95.03 to 72. The purpose of this project is to allow passenger trains to operate at 110 mph, providing part of the travel time reduction needed			✓		✓					

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
						System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
			between Seattle and Portland, OR. This project is needed because the current physical condition of the track and the current track geometry in this location (because of terrain) do not allow trains to travel at high speed.										
Lewis County	Woodland Siding	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 115.3 to 117.1. Construction of a new siding would allow freight trains to wait and switch, thus freeing up the main line. This project will increase capacity and reliability.			✓		✓					
Lewis County	Felida to MP 114 Third Man Track	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 130.45 to 112.2. A new eighteen mile-long main line will be build adjacent to the existing double track. The purpose of this project is to allow passenger trains to operate at 110 mph, providing part of the travel time reduction needed between Seattle and Portland, OR to achieve WSDOT's service goal.			✓		✓					
Lewis County	Columbia River Bridge	WSDOT Long Range Plan for Amtrak Cascades	Rail milepost 9.61 to 10.14 The Portland - Spokane route junction at the north end of the Columbia River Bridge has a 10 mph speed restriction. Construction of an additional bridge and modification of the existing bridge would provide better movement of traffic and reduce the effect of bridge openings on rail traffic.			✓		✓					
Entire Corridor	Advance Signal System	WSDOT Rail Division Project List	Advanced signal system allowing passenger rail speeds over seventy-nine mph. Will meet FRA requirements for high speed passenger trains; ensure continued safe operation of Amtrak Cascades trains as speeds are increased.			✓		✓					
British Columbia	Greater Vancouver Terminal (Scott Road Station)	WSDOT Long Range Plan for Amtrak Cascades	Construct new passenger rail station			✓		✓					
British Columbia	Vancouver Terminal Control System	WSDOT Long Range Plan for Amtrak Cascades	Installation of new traffic control system			✓		✓					
British Columbia	Still Creek to CN Junction	WSDOT Long Range Plan for	New siding			✓		✓					

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
						System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
		Amtrak Cascades											
British Columbia	Sperling-Willingdon Junction Siding	WSDOT Long Range Plan for Amtrak Cascades	New siding			✓		✓					
British Columbia	Willingdon Junction	WSDOT Long Range Plan for Amtrak Cascades	Grade separation			✓		✓					
British Columbia	Brunette-Piper Siding	WSDOT Long Range Plan for Amtrak Cascades	New siding			✓		✓					
British Columbia	Fraser River Bridge	WSDOT Long Range Plan for Amtrak Cascades	Replace or improve existing bridge			✓		✓					
British Columbia	Colebrook to Brownsville High-Speed Tracks (north of White Rock)	WSDOT Long Range Plan for Amtrak Cascades	High speed track, continuation of White Rock bypass			✓		✓					
British Columbia	Colebrook Siding	WSDOT Long Range Plan for Amtrak Cascades	New siding			✓		✓					
British Columbia	White Rock Bypass	WSDOT Long Range Plan for Amtrak Cascades	High speed rail bypass			✓		✓					
Sound Transit	Seattle to Everett	Sound Transit	Various capacity improvements			✓		✓					
Sound Transit	Seattle to Tacoma to Lakewood	Sound Transit	Installation of Centralized Traffic Control system and additional trackage			✓		✓					
Sound Transit	Argo to Black River (south Seattle)	Sound Transit	Reconfiguration of existing yard and main line tracks/Costs included above			✓		✓					
Oregon	Columbia River Bridge (joint	WSDOT Long Range Plan for	New bridge			✓		✓					

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
						System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
	Washington and Oregon project)	Amtrak Cascades											
Oregon	North Portland Junction to Kenton (north of Portland's Union Station)	WSDOT Long Range Plan for Amtrak Cascades	Reconfiguration of existing tracks and new second main line			✓		✓					
Oregon	East St. Johns Siding and Main Track Relocation	WSDOT Long Range Plan for Amtrak Cascades	Construction of a new siding and change in configuration of yard tracks			✓		✓					
Oregon	Lake Yard North Leads	WSDOT Long Range Plan for Amtrak Cascades	Install high speed yard leads			✓		✓					
Oregon	Portland Union Station	WSDOT Long Range Plan for Amtrak Cascades	Construct new turnout and construct new main line			✓		✓					
Seattle-Lakewood	Commuter Rail Project: Seattle to Lakewood Sound Transit	Sound Transit	Includes agreements and easements with the BNSF for operating commuter rail service between Seattle and Lakewood. Up to four additional commuter rail easements on Sounder for service between Seattle and Lakewood.	2013	Various state funds			✓				✓	
City of Mukilteo	Pedestrian Bridge at Mukilteo Commuter Rail Station		Construction of a pedestrian bridge at the Mukilteo Commuter Rail Station linking two commuter rail platforms located on either side of the BSNF tracks with the Sounder Commuter Rail Station.	2014	FTA and Various State Funds			✓					✓
Mukilteo	Mukilteo Multimodal Terminal	WSDOT Rail Division Project List	Remove existing ferry terminal and build a multimodal transportation terminal at a more advantageous location.	2017	Various State Funds	✓		✓			✓		

Table D.2 Planned & Programmed Class I (C), Short-Line (S), Multimodal (MM) and Other (O) Rail Projects

Type	Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
							System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
Funded														
C	Port of Vancouver	Port of Vancouver Rail Tie to Mainline	FMSIB	Construct a concrete rail trench in Columbia River near BNSF rail bridge providing new access to the port. It will eliminate at-grade crossings, reduce delays, congestion and improve port operations.	2015	FMSIB - $2.94 HSIPR $15.0	✓		✓	✓	✓		✓	✓
C	Spokane	North Spokane Corridor Railroad Realignment	TIGER IV Project	Continued construction of the US 395 North Spokane Corridor (NSC). It relocates 7.5 miles of railroads. Benefits will mostly accrue on the highway side, but there may be rail safety benefits from the track relocation.	2015	Tiger IV - $10 Million		✓					✓	✓
C	Cheney	Cheney Siding Extension Union Pacific Railroad	Washington State 2010 - 2030 Freight Rail Plan, UP	Add Track - increased fluidity	5-year plan	UP	✓		✓		✓	✓		
C	Wallula	Sun Harbor New Siding	UP	Increased fluidity	5-year plan	UP	✓		✓		✓	✓		
C	Various	CTC Islands - Ayer Sub	UP	Increased fluidity	5-year plan	UP	✓		✓		✓	✓		
C	Seattle	Seattle Sub Phase III	UP	Increased fluidity	5-year plan	UP	✓		✓		✓	✓		
MM	Port of Vancouver	West Vancouver Freight Access	Washington State 2010 - 2030 Freight Rail Plan, RTPOs (Forward Washington, and http://www.portvancusa.com/wvafa/funding/	This project consists of 21 independent elements, which includes construction of a new dual carrier rail access into the port, enhancement to rail system, relocation of facilities and utilities and improvements to roadways.	2017	Port of Vancouver ($173.3M), Tenants ($46M), WSDOT HSIPR grant ($15M), FMSIB grant ($13.5M), Tiger II grant ($10M), BNSF Railway ($8.1M), FRA grant ($3.8M), ARRA	✓		✓	✓	✓			✓

Type	Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
							System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
						2009 grant ($2.5M), FHWA grant ($1.6M), WSDOT FRAP grant ($0.5M)								
S	Centralia	Tacoma Rail and Puget Sound and Pacific RR/Centralia - Reconfigure Rail	Short-line railroad host	Build a new connection between Tacoma Rail and PSAP at Blakeslee Junction, and associated track re-alignment. Will reduce congestion for both rail and automobile traffic in the area.	NA	Phase 1A - 2005 Partnership Funding (Weight Fees) - $7.4 million; Phase 1B - Multimodal Transportation Account - $1.5 million; Phase 1B - Federal Funds - $3.9 million	✓	✓	✓	✓				
Planned														
S	Vancouver	Columbia Shores (S. of SR 14)	Short-line railroad host	Rail Trestle, Widen Portal	2020-2035			✓						✓
C	Fife	Fife Siding Extension	UP	Port of Tacoma - Additional Capacity	5-year plan	UP	✓		✓		✓	✓		
MM	Seattle	Port of Seattle's Argo Yard Truck Roadway (East Marginal Way Truck Crossover)	FMSIB	This project provides safe truck access to the gate of UP's Argo Yard from a newly designed intersection, eliminating difficult weaving maneuver.	2014	FMSIB - $0.995M								✓
MM	Port of Pasco	Big Pasco Rail Rehabilitation	RTPO's / Forward Washington	Reconstruct 5 miles of rail at Big Pasco, an industrial center, to help improve access to agricultural and industrial shippers which can in turn attract business to the port. A 4 Phase intermodal facility improvements project was completed in 2010.	2021-2035		✓							
O	Grays Harbor	Rail Car Storage		Design and construction of a rail car storage	2013		✓		✓	✓	✓	✓	✓	

Type	Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact							
							System Capacity	System Preservation	Efficiency & Reliability	Economic Development	International Trade	Cost-Effective Investments	Environment & Community	Safety & Security
	County			yard to relieve rail conflicts in downtown Aberdeen from train switching movements across at-grade street crossings. Construct two new rail sidings.										
O	Cowlitz County	SR 432 Corridor Improvements	WSDOT Project List	Rail and highway improvements. Short-term elements: Preliminary analysis, final design, environmental, engineering for rail and highway. Long-term: ROW and CN - Single point urban interchange and rail improvements	2019		✓		✓	✓			✓	
S	Spokane/Whitman County	P&L Bridge Replacement & Repair - Phase II	PCC Strategic Plan 2013	In coordination with over $21 million in private investment to build a new grain terminal by McCoy Grain Terminal LLC, Phase II of this project would replace or repair 15 bridges along the first 32 miles of the P&L branch of the PCC Rail System.		TIGER 5 application submitted		✓	✓	✓	✓			
S	Spokane County	CW Line Rail Relay & Rehabilitation - Phase I	PCC Strategic Plan 2013	Would replace worn rail, rebuild right-of-way and improve aged at-grade highway/rail grade crossings along 6.9 miles of the CW Branch of the PCC Rail System. Will enable load-bearing weight capacity up to 315,000 pounds and allow 25 miles-per-hour over the rebuilt rail segment.		TIGER 5 application submitted		✓	✓	✓	✓			
O	Quincy	Port of Quincy Intermodal Terminal	Port of Quincy Comprehensive Plan	A project to expand the intermodal terminal to serve perishable agricultural commodities.			✓			✓				
O	Moses Lake	Port of Moses Lake	WSDOT Project List	Project is to provide rail service to lands designated for industrial development in the northern part of the City of Moses Lake as well as to the south and east of the Grant County International Airport (GCIA), to enhance opportunities for economic development, and to attract new rail-dependent businesses to those areas.						✓				

Table D.3 Planned & Programmed Grade Crossing Improvements

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact				
						System Capacity	Efficiency & Reliability	International Trade	Environment & Community	Safety & Security
Funded										
Auburn	M Street SE Grade Separation	FMSIB	This project will eliminate the at-grade crossing of the Stampede Pass Line at M Street SE by creating an underpass. Benefits will mostly accrue to roadway users, but there may be rail safety and efficiency benefits from the grade separation.	2013	Local - $6M, FMSIB - $6M, Federal - $1M, Ports - $1.5M, BNSF - $0.5M, King County - $0.24M				✓	✓
Kent	Willis St (SR 516) Grade Separations	FMSIB	Grade separate Willis St from BNSF and UP railways to provide link thru the warehouse/industrial center of Kent. Project will reduce delays, eliminate at-grade conflicts and allow increased train speeds. Benefits will mostly accrue to roadway users, but there may be community and rail safety benefits from the grade separation.	2022	City of Kent - $9.4M, FMSIB-$4M, TIB-$10M, BNSF&UP - $5.35m, FAST-$17M, Ports - $5M, Other - $6.25M		✓		✓	✓
Yakima	Yakima Grade Separated Rail Crossing	FMSIB	Construct 2 underpasses under BNSF mainline. It will be critical to improve truck freight movement, emergency vehicles and vehicles into/out of downtown area. Benefits will mostly accrue to roadway users, but there may be community and rail safety benefits from the grade separation.	2014	FMSIB - $7M				✓	✓
37th St NW, Auburn	37th & B ST NW Railroad Crossing Safety Improvements	City of Auburn	Design, coordination, permitting and construction of improvements at the 37th St NW BNSF Railroad crossing. Include construction of a pre-signal and related signal modification at B St NW, advanced railroad pre-emption, and traffic monitoring cameras.	2014	Federal safety grant.		✓			✓
Various citywide, Marysville	Citywide Intersection Safety Improvements	WSDOT City Safety Program: http://www.wsdot.wa.gov/LocalPrograms/Traffic/CitySafetyFunded.htm	The Citywide Intersection Safety Improvement Project will upgrade pedestrian signal displays, retroflective backplate tape to signal heads, upgrade mast arm signage, add intersection lighting and improve railroad preemption at various signalized intersections within the City of Marysville.		HSIP (Federal Highway Safety Improvement Program)		✓			✓
Sedro-Woolley	Construction of BNSF RR Bridge - SR 20 Corridor Freight Mobility &	City of Sedro Woolley	Construct a new BNSF railroad bridge connecting John Liner Road with Jones Road. Benefits will mostly accrue on the highway side, but there may be rail safety benefits from the track relocation.	2015	Skagit County, WSDOT, TIB Urban Arterial Program funds, Skagit Transit				✓	✓

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact				
						System Capacity	Efficiency & Reliability	International Trade	Environment & Community	Safety & Security
	Revitalization Project Phase 2B				funds, private developer.					
Vancouver	Jefferson Street/Grant Street	City of Vancouver	Reconstruct and grade separate	2012	Local Funding - $10M				✓	✓
Kent	South 212th St Grade Separation	FMSIB	This project will construct RR grade separation at the BNSF and UP rail line. Benefits will mostly accrue to roadway users, but there may be community and rail safety benefits from the grade separation.	2017	FMSIB - $10M				✓	✓
Planned										
Spokane Valley	Barker Road/BNSF Grade Separation	FMSIB / City of Spokane Valley	This project reconstructs Barker Rd to pass over three BNSF tracks and SRS 290. This will allow the City to petition to close Flora Rd crossing. Benefits will mostly accrue to roadway users, but there may be rail safety benefits from the grade separation.	Unknown	FMSIB - $10; Project is currently delayed due to incomplete funding				✓	✓
S. 228th St. to Union Pacific Railroad tracks, Kent	S 228th St Grade Separation Phase III	FMSIB	Grade separation between the Union Pacific Railroad tracks at S. 228th Street via an over-crossing. To accommodate the over crossing, associated improvements will include driveway improvements for the adjacent businesses, to accommodate access, concrete curbs, gutters, and sidewalks, storm drainage improvements, geogrid reinforced block walls, and new lighting.	2015	STPD-1216(004)					✓
Kent	South 228th St BNSF /UP Grade Separation Phase III	FMSIB	This is the phase III of a project to grade separate 228th St from UP mainline traffic. It will decrease congestions, enhance safety, improve mobility, and provide connection to 40M sq. ft of industrial spaces. Benefits will mostly accrue to roadway users, but there may be community and rail safety benefits from the grade separation.	2017	FMSIB -$3.25m; Kent - $2.0M; Federal - $3.12m; Unfunded (anticipated) $16.63M				✓	✓
Pierce County	Canyon Road Northerly Extension / BNSF Railway Overcrossing	FAST Corridor	This project will construct a new overpass of the BNSF Railway mainline from Pioneer Way to 62nd Avenue East. Also arterial roadway extension of Canyon Road from Pioneer Way across the Puyallup River. Will increase capacity for roadway freight and goods movement and provide a more direct route to the Port of Tacoma from the manufacturing and industrial businesses in Fredrickson and	2017	Pierce Co. - $10.2m; FMSIB - $2.0m; Fed. $3.2m; "Anticipated" / unfunded $24.2M	✓		✓		✓

Location	Project Name	Source	Description	Completion Date	Funding Source(s)	Areas of Impact				
						System Capacity	Efficiency & Reliability	International Trade	Environment & Community	Safety & Security
			elsewhere in Pierce County.							
Washougal	27th St Extension and RR overpass	RTPO's / Forward Washington	RR grade separated overpass, bike lanes and sidewalk. Benefits will mostly accrue to roadway users, but there may be community and rail safety benefits from the grade separation.	2011-2017	No evidence of secured funding				✓	✓
Vancouver	Esther Street at R Xing	FAST Corridor	Railroad Undercrossing, new road. Benefits will mostly accrue to roadway users, but there may be community and rail safety benefits from the grade separation.	2014					✓	✓
Ridgefield	Extend Pioneer St. (SR501 to Port)	City of Ridgefield	Railroad Overcrossing, new road. Benefits will mostly accrue to roadway users, but there may be community and rail safety benefits from the grade separation.	2018					✓	✓
Cowlitz County	Yew Street Grade Separation	City of Kelso	Provide safe crossing along BNSF rail line. Benefits will mostly accrue to roadway users, but there may be community and rail safety benefits from the grade separation.	2017					✓	✓
Seattle	Dearborn and Spokane Streets Grade Separation	City of Seattle Department of Transportation	Construction of highway bridge over BNSF main line between Dearborn and Spokane Streets.	2030				✓	✓	✓
Seattle	Lander Street Grade Separation	City of Seattle Department of Transportation	A proposed bridge over BNSF Railway Tracks, connecting First Avenue South and Fourth Avenue South. This project was placed on hold as of March 2008 due to funding limitations. The future schedule of the project is unknown at this time, though this project remains a priority for SDOT.					✓	✓	✓